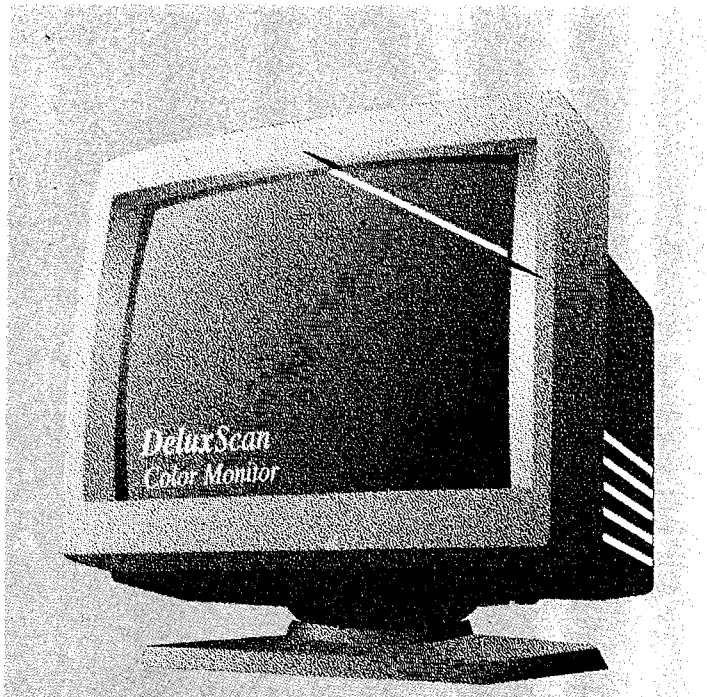

DeluxScan 17B+

MODEL : HL/T 7870A

TECHNICAL SERVICE MANUAL

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HYUNDAI

SAFETY PRECAUTION

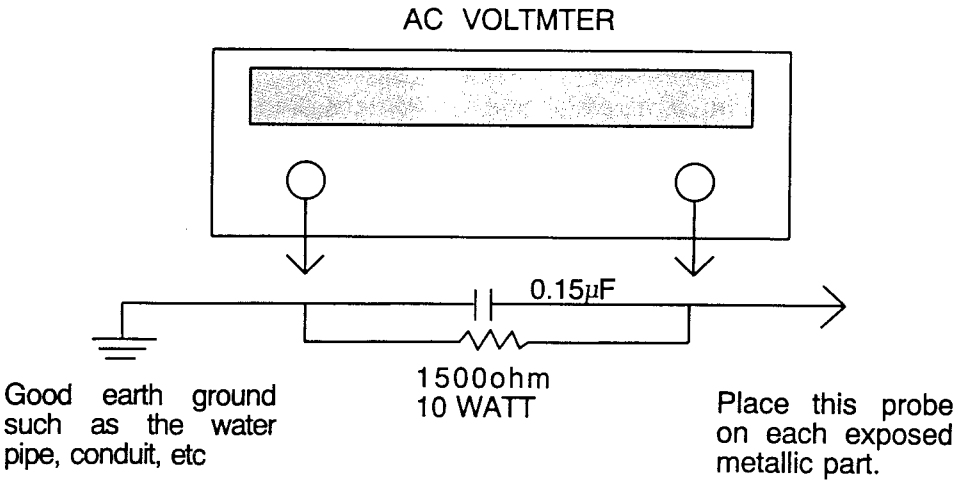
WARNING

Service should not be attempted by anyone unfamiliar with the necessary precautions on this monitor. The followings are the necessary precautions to be observed before servicing.

1. Always discharge the high voltage to the CRT conductive coating before handling the CRT. The picture tube is highly evacuated and if broken, glass fragments will be violently exploded. Use shatterproof goggles and keep picture tube away from the bare body while handling.

2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

3. Before returning the monitor to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as signal connectors, terminals, screw heads, metal overlays, control shafts etc, to be sure the monitor is safe to operate without danger of electrical shock. Plug the AC line cord directly into a AC outlet (do not use a line isolation trasformer during this check.). Use an AC voltmeter having 1500 ohm per volt or more sensitivity in the following manner : Connect ground(water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC Voltage across the combination of 1500 ohm resistor and 0.15μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. The Voltage must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp AC. Any value exceeded this limit constitutes a potential shock hazard and must be corrected immediately.


AC VOLTMTER
0.15μF
1500ohm
10 WATT
Good earth ground such as the water pipe, conduit, etc
Place this probe on each exposed metallic part.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must be under the specified limit. The nominal value of the high voltage of this monitor is 25KV±0.5KV at zero beam current(minimun brightness) under a 120V AC power source. The high voltage must not(under any circumstances) exceed 28KV. Each time a monitor requires servicing, the high voltage should be checked.
   It is recommended the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

2. This monitor is equipped with a protection circuit which prevents the monitor from producing excessively high voltage. Each time the monitor is serviced, the protection circuit must be checked to determine that the circuit is properly functioning.

3. The only source of X-RAY RADIATION in this monitor is the picture-tube.
   For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.

4. Some parts in this monitor have special safety-related characteristics for X-RAY RADIATION protection.
   For continued safety, parts replacement should be undertaken only after referring to the product safety notice.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this monitor have special safety-related characteristics. These characteristics are often not evident from visual inspection.
Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features identified by "⚠" in the replacement parts list and schematic diagram.
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which dose not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-RAY RADIATION or other hazards.

GENERAL INFORMATION

1. Description

This 17" (15.7" viewable) color display monitor is operated in R, G, B, drive mode input.

2. Operating instructions

2-1. External instructions

2-2. Front

Power Switch, Menu, Select, Down(▼), Up(▲), DPMS (Power) LED.

2-3. Rear

Input connection, (AC & SIGNAL CABLE)

2-4. Service Instruction(internal controls)

High-Voltage, +55V, Focus, Screen, H-Center.

2-5. OSD Controls

Contrast, Brightness, H/V-Position, H/V-Size, Pincushion, Trapezoid, Rotation, Degauss, Color Adjust, Preset Timing, Recall.

3. Electrical Characteristics

3-1. 100-240 Volt 60Hz/50Hz for use all over the world.

This power supply is a 90 Watt multi output SMPS for monitor.

3-2. Video

Input : 0.7V p-p analog signal(at 75 ohm terminated)
Bandwidth : 85MHz (-3dB)
Polarity : Positive

3-3. Horizontal Drive

Level:TTL High:2.4V min
Low :0.4V max
Polarity:Negative or Positive
Frequency:30kHz~70kHz
Timing Limits : Pulse width : 1.0μs ≤ Thp ≤ 8.0μs

3-4. Vertical Drive

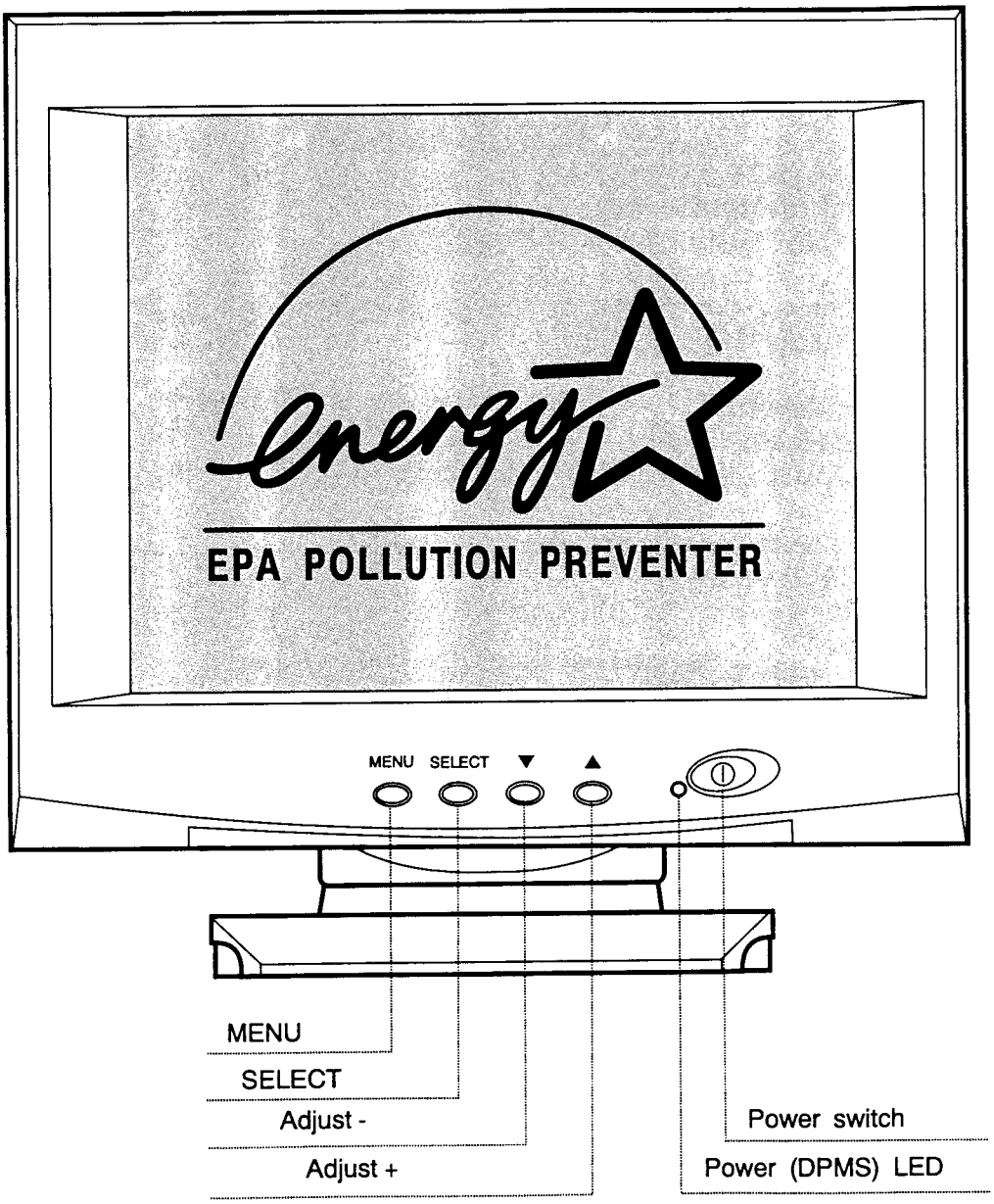
Level:TTL High:2.4V min
Low :0.4V max
Polarity:Negative or Positive
Frequency:50Hz~150Hz
Timing Limits : Pulse width : 0.05ms ≤ Tvp ≤ 0.5ms

4. Model Description.

HL-7870A : MPR II Version of 7870A
CRT Type No. : M41KXH100X11.

HT-7870A : TCO92 Version of 7870A
CRT Type No. : M41KXH110X11-M.

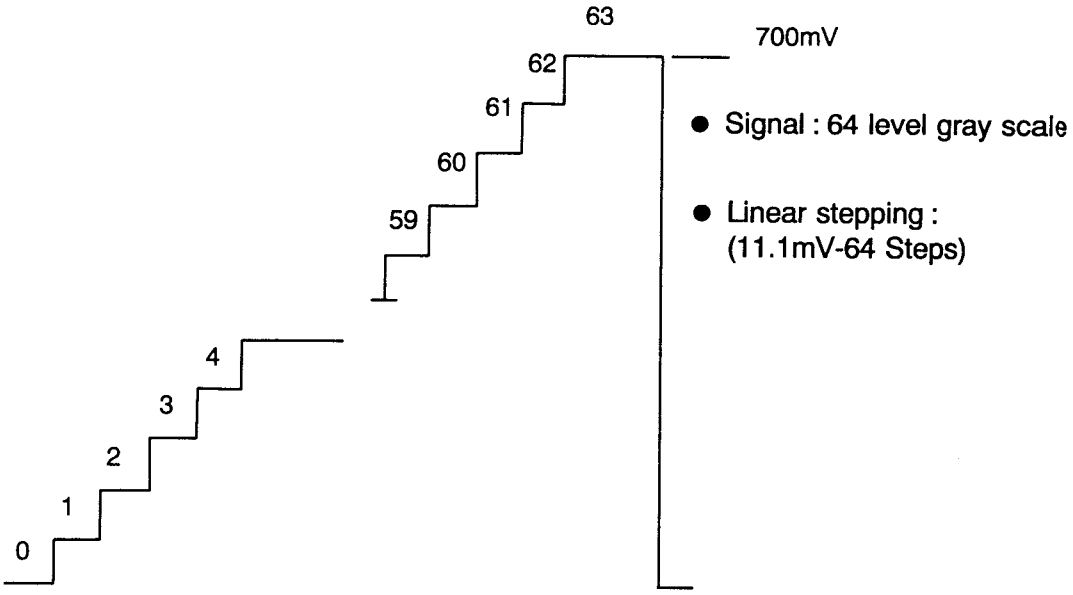
CONTROL DESCRIPTION



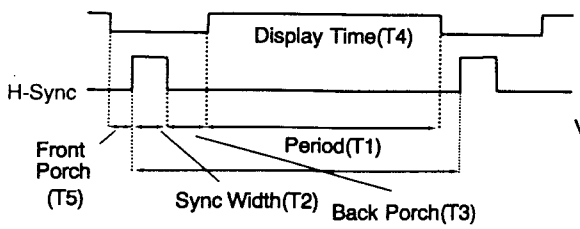
VIDEO INPUT SIGNAL

Recommended signals are shown below.

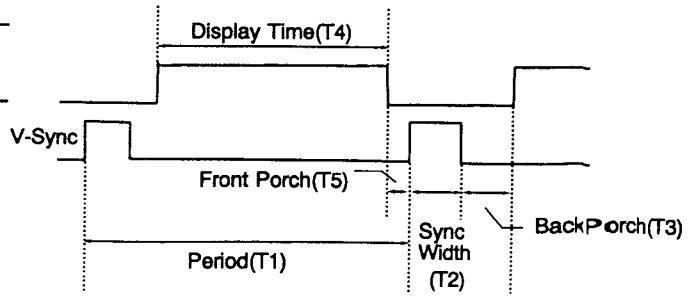
- **Video Signal**
  Video Level : 0 to 700mV
  Polarty : Positive
  Video Input : RGB separated
  Analog level
  Sync input : H-Sync ; TTL level
  V-Sync ; TTL level
- **Waveform**
  Video input(R, G, B)



● H-Sync



● V-Sync



● Timing Table

Horizontal	Dot	720	640	640	800	800	1024	1024	1280
Frequency	kHz	31.469	37.500	43.269	46.875	53.674	60.023	68.677	63.981
Period(T1)	μs	31.778	26.667	23.111	21.333	18.631	16.660	14.561	15.630
Sync Width(T2)	μs	3.813	2.032	1.556	1.616	1.138	1.219	1.016	1.037
Back Porch(T3)	μs	1.907	3.810	2.222	3.232	2.702	2.235	2.201	2.296
Active(T4)	μs	25.422	20.317	17.778	16.162	14.222	13.003	10.836	11.852
Front Porch(T5)	μs	0.636	0.508	1.556	0.323	0.569	0.203	0.508	0.444

Vertical	Line	400	480	480	600	600	768	768	1024
Frefquency	Hz	70.087	75.000	85.008	75.000	85.061	75.029	84.997	60.020
Period(T1)	ms	14.268	13.333	11.764	13.333	11.756	13.328	11.765	16.661
Sync Width(T2)	ms	0.064	0.080	0.069	0.064	0.056	0.050	0.044	0.047
Back Porch(T3)	ms	1.080	0.427	0.578	0.448	0.503	0.466	0.524	0.594
Active(T4)	ms	12.711	12.800	11.093	12.800	11.179	12.795	11.183	16.005
Front Porch(T5)	ms	0.413	0.027	0.023	0.021	0.019	0.017	0.015	0.016
Interlaced	Y/N	N	N	N	N	N	N	N	N
Sync Polar	H	-	-	-	+	+	+	+	+
	V	+	-	-	+	+	+	+	+

The monitor is compatible with additional modes within the specified frequency ranges provided that they are different at least for one of the following :

Horizontal Freq. : ±1kHz
Vertical Freq. : ±2Hz

Note : Even if the monitor detects the input timing as a factory preset mode, the size and position may not be able to be set as desired. Check the input timings are under the specifications and adjust the image as you want.
For better quality of display image, use the timing and polarity shown in the table above, Please see you video card user's guide to ensure compatibility.

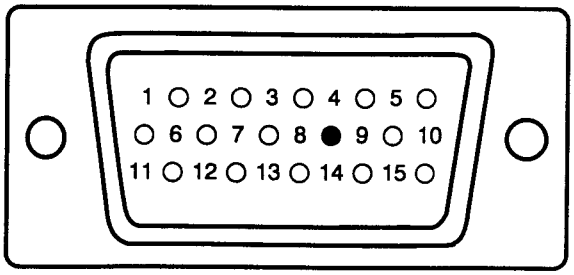
VIDEO INPUT TERMINAL

A 15 Pin D-sub connector is used as the input signal connector.
Pin and input signals are shown in the table below.

Pin Description

SIGNAL / PIN NO.	SEPERATE SYNC	COMPOSITE SYNC
1	RED	RED
2	GREEN	GREEN
3	BLUE	BLUE
4	GROUND	GROUND
5	GROUND	GROUND
6	RED GROUND	RED GROUND
7	GREEN GROUND	GREEN GROUND
8	BLUE GROUND	BLUE GROUND
9	N.C	N.C
10	LOGIC GROUND	LOGIC GROUND
11	GROUND	GROUND
12	SDA	SDA
13	H-SYNC	(H+V) SYNC
14	V-SYNC(VCLK)	VCLK
15	SCL	SCL

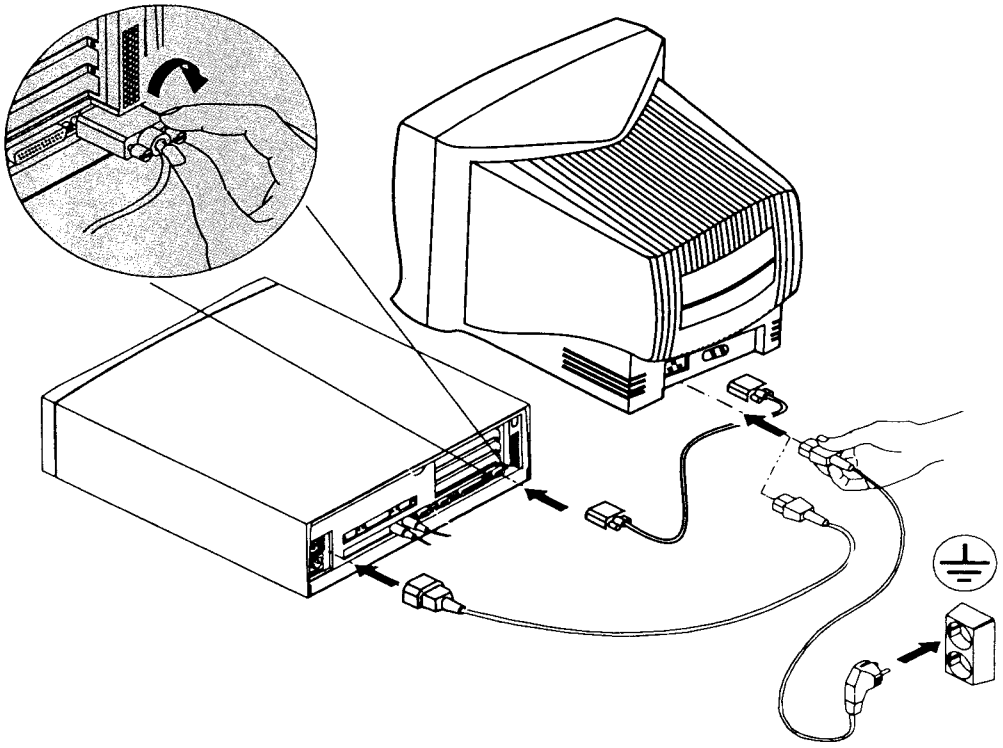
D-Sub miniature connector



CONNECTING WITH EXTERNAL EQUIPMENT

Cautions

Be sure to turn off the power of your computer before connecting the monitor.



THEORY OF OPERATION

1. Power Supply

The AC line voltage range is from 90V to 264V.
The SMPS has +55V, +70V, +6.3V, +12V, +24V.
The inlet connector with a EMI filter is used to reduce the noise from the power supply.
The conducted noise is filtered by inlet (LF101), X and Y capacitors (C101~103) and a common mode line filter (L101).
The input rectifier section (BD101) converts the AC line voltage into a DC voltage to power the SMPS.
The KA3842B (U101) drives the power FET(Q102) according to the PWM signals generated by the R_T and C_T (R111, R117, C105) connected pin 4 of U101.
The KA3842 (U101) is an integrated current mode PWM.
It consists of an oscillator, error amplifier, current sense comparator, under voltage lock-out and an MOSFET drive stage.
The switching frequency is locked to horizontal scan frequency by horizontal flyback pulse from sync transformer (T102).

2. DPMS and Selftest mode.

The power supply supports the DPMS function. Its operation is shown in the table below.

MODE	H-Sync	V-Sync	MCU PIN 12	BRI MCU PIN 29 / CONT MCU PIN 30	MCU PIN 17	MCU PIN 11	Q103	Q108	12V	6.3V
NORMAL	O	O	GND	Control	H	H	ON	ON	12V	6.3V
SELFTEST	X	X	OPEN	5V	H	H	ON	ON	12V	6.3V
STAND-BY	X	O	GND	0V	H	H	ON	ON	12V	6.3V
SUSPEND	O	X	GND	0V	L	H	OFF	ON	0V	6.3V
OFF	X	X	GND	0V	L	L	OFF	OFF	0V	0V

3. Signal Processing and MCU Control

When the H and V sync or TTL composite sync are input to MCU, MCU can measures the H and V frequency to detect the video mode. MCU has digital to analog converter (DACs) control function like R/G/B Cut-off, side pincushion, R/B gain, H-size, H-position, V-size, V-postion, Trapezoid, brightness, contrast and tilt. (PWM 0~PWM13)
The operation of MCU is shown in the table below.

H-Freq. [kHz]	H-LIN 1 PIN 18	H-LIN 3 PIN 19	H-LIN 2 PIN 20	Co PIN 23	Remark.
H<33	L	L	L	L	
33≤H<36	L	L	H	L	
36≤H<41	L	H	H	L	
41≤H<45	H	L	L	L	
45≤H<50	H	H	L	L	
50≤H<55	H	L	H	L	
55≤H<61	H	L	H	H	
61≤H<71	H	H	H	H	
H≥71	L	L	L	L	" Out of range "

4. Horizontal Deflection

STV7778(U301) is a monolithic IC for H/V sync and drive processing. In phase comparator between sync and oscillator(PLL2), DC controls for phase, frequency and output duty setting.
When H-sync applied, the internal oscillator is automatically locked. The duty cycle of H-output pulse(pin 21) is 48%.
Q312 and T301 are used to drive the H-output transistor(Q311). Q311 is turned on, it conducts current through the deflection yoke on the right hand side of the screen. This current comes from the S correction capacitors (C339, 341, 342, 344), which have a charge equal to the effective supply voltage.
When the Q311 is opened up, the damper diode(D308) allows current for left hand side of the screen to flow back through the deflection yoke to the S capacitors.
The flyback cpacitor (C338) determines the size and length of the flayback pulse. The S capacitors correct outside versus center linearity in th horizontal scan.
Two FETs (Q309, 310) and relay (RL301) select the value of S capacitors. H-centering is controlled by a switch (SW301). The switch selects DC offset current flow through the yoke.
A diode moulator is used to control the E-W correction and H-size. STV7778 (U301) generates the E-W parabola wave using vertical ramp. A DAC is used to control the amplitude of E-W parabola, H-size. A power buffer (Q316, Q317) drives the diode modulatior.
In order to keep the high voltage constant independent of the horizontal scan frequency, the supply voltage of FBT must increase with increasing scan frequency proportionally. A step-up mode DC//DC converter with PWM is used to realize this demand. STV7778 (U301) compares High Voltage feedback with Refence voltage. Its output pulse swithches a FET(Q315). To adjust the High Voltage, STV7778(U301) has a control Teminal (Pin 39).

5. Vertical Deflection

In vertical section of STV7778 (U301), there is auto-sync processing.
The vetical output stage consists of a power OP-AMP with extra flyback grnerator. TDA9302H (U 201) is used as vertical output stage.

6. X-ray Protection and Beam Current Limiting.

A failure in the horizontal scan control section could cause a dangerous situation; the high voltage might rise to an unacceptable high level. When the flyback voltage rise to unacceptable level, STV 7778 (U301 Pin16) detect these states (under 1.6V).
It causes the H-drive stage and oscillator to be turned off. Then high voltage is shut down until the power switch is on again.
The average anode current is measured at lower side of the High Voltage winding of the FBT. The anode current flows through resistor R502, 503 connected against +12V. When the anode current increases, the voltage across R503 increases also. The base voltage of Q501 drops so contrast control voltage is limited.

7. Video Amplifier and OSD Interface

MC13282AP (U401) is a wide band video amplifier with three matched video amplifiers, contrast control, OSD interface, OSD contrast control, drive controls, blanking gate and clamp gate. H blank signal is applied to pin24. During blanking all three outputs are thrown to the pedestal level.
A inserted H-Sync is used to a clamp signal. The signal is applied to pin 23.
Three OSD inputs (pin8, 10, 12 of U401) are TTL compatible and typical bandwidth is 50MHz.
A fast commutate pin is provided to select either the video or the OSD inputs as a source for the amplification.
OSD contrast control (pin 11 of U401) is also provided for the amount of amplification required when OSD inputs are selected.
MC141540P4 (U403) is a high performauce HCMOS device designed to interface with a micro controller unit (U601) to allow colored symbols or characters to be displayed on the monitor screen.
The output stage is made of 3-channel power amplifier (U402, LM2405). The output capable of 40 volts swing in less than 12 n Sec.
The three cathodes are AC coupled to the video amplifiers. The DC level on each cathode is set by a cut-off amplifier and clmap diode. The value of the DC voltage is adjusted by DACs.

TROUBLE SHOOTING

1. Introduction

This troubleshooting guide is arranged by fault conditions. Following each fault condition is a check for a signal on condition to be answered YES or NO.
For NO answer proceed to the right and continue until the fault is located.
For a YES answer continue in the left column to the next numbered check.
Again followed this procedure until the fault is located.

2. Trouble shooting procedure

When Troubleshooting this monitor, some precaution should be observed.
Use a high quality isolation tranformer is capable of providing 3 Amps or more.
Never connect primary ground and secondary ground together including use with an isolation transformer.
Measure high voltage with respect to chassing ground only, and with a high impedance prove of 1000 mega-ohm or higher and rated for 30KV DC or higher.
Measure Q311 collector pulse with a high quality 100:1 probe rated for 1500 volts or higher.

3. Troubleshooting procedure

Symptom	Ckeck(YES)	Action(NO)
a) Image is scrolling.	1) Check for Vsync at pin 40 of U601	Check 15pin D-sub connector, cable, D611
	2) Check for positive going Vsync at pin 34 of U301. (WF5)	Check U301, U601
	3) Will V-oscillator is locked with input signal? pin 27 of U301. (WF8)	Check C327
	4) Check V-ramp at pin 30 of U301	Replace U301.
b) Image is unstable.	1) Check for Hsync at pin 39 of U601	Check 15pin D-sub connector, cable, D612
	2) Check for positive going Hsync at pin 33 of U601. (WF4)	Replace U601
	3) Will H-oscillator is locked with input signal? pin 10 of U301. (WF6)	Check C310, C311, C312, R313, R314, D302
	4) Check H-out at pin 21 of U301. (WF7)	Replace U301
	5) Check for flyback pulse at pin 3 of U301. (WF21)	Check R305

Symptom	Ckeck(YES)	Action(No)
c) Screen is black but high voltage is present.	1) Check for G2, pin4 of CRT. Around 550 volts?	Check R494, G2 wire, CRT socket.
	2) Check for heater voltage at pin 6 of CRT. (about 6.0V)	Check D107, FL401, P402 CRT socket.
	3) Can screen be lit with brightness control at MAX?	Check D501, C502, D509, Q506, Q505, Q503 CRT socket.
	4) Check for video at pin 2, 4, 6 of U401.	Check 15pin D-sub connector, cable, D613~D618
	5) Check for positive pulse for clamp at pin 23 of U401. (WF30)	Check Q321
	6) Check if video level at pin 15, 19, 22 of U401. (WF28)	Check U601, Q501, Q502, U401.
	7) Check for video at pin 8, 9, 11 of U403.	Check U401.
	8) Check for video of pin 1, 3, 5 of U403. (WF32)	Check U403, 75VDC (pin6) 12VDC (pin10)
	9) Check if R, G, B cut-off control the video DC level at pin 4, 6, 9 of CRT.	Check Q431~Q436
	10) Check CRT.	
d) Screen is black with no high voltage.	1) Check for 55V at anode of D105.	Check 55V with no load. If no 55V, Check SMPS. If 55V OK, Check Q313 to Q315, R357, R358, Pin 22 of U301.
	2) Check for 12V at collector of Q103.	Check 12V with no load. If no 12V, Check Q103, Q104, SMPS. If 12V OK, Check U301, U401, U201.
	3) Check for 5V at pin 3 of U104.	Check U104, U601.
	4) Check for 24V at anode of D109.	Check SMPS, D109.
	5) Check collector pulse of Q315.	Replace Q315.
	6) Check drain pulse of Q312. (WF16)	Check Q312, U301, D307.
	7) Check collector pulse of Q311. (WF18)	Check Q312, D309, D318.
	8) Check T501 (FBT)	

ADJUSTMENT METHOD

1. Caution

Extremely high voltage are present in the area around the FBT(T501) and the anode high voltage lead. Do not touch Q102 or its heatsink as high voltage is present on these components.

2. Equipment Required

Digital Voltmeter
Frequency Counter : about 40 Hz to 100 KHz
Color Analyzer
Video Signal Generator
High Voltmeter : up to 30 KV
Alignment Templete : Attachment 1
Factory Adjustment JIG : Attachment 2

3. Before Adjustment

Verify that the video output level is 0.7 Vpp at 75 ohm termination and the video timmings are same as standard timming given in specification.
Allow the monitor to stabillize thermally for 15 minutes at least before any adjustment about the image parameters. The electron optics of the CRT and electronics of system require time of stabillize.

4. Adjustment Procedure

4-1 Voltage and Free-Run Frequency

1) 55V Setting
   - Video Signal : Cross Hatch pattern in 64kHz, 1024 mode
   - Set the G2 controls to the minimum position.
   - Measuring Point : Cathode of D105 or D111 at main Board
   - Adjustment : VR101, main board
   - Limits : 55.0±0.5V

2) High Voltage Setting
   - Video Signal : Black pattern in 64kHz, 1024 mode
   - Set the G2 controls to the minimum position.
   - Measuring Point : TP1
   - Adjustment : VR301, main board
   - Limits : 123V±0.5V

3) Screen Voltage Setting
   - Video Signal : Cross Hatch pattern in 64kHz, 1024 mode
   - Measuring Point : G2 on the CRT board (use High Voltmeter)
   - Adjustment : Screen VR (lower VR of FBT)
   - Limits : 550V±10V

4-2 Horizontal Raster Center Setting

- Video Signal : Back Raster pattern in 64kHz, 768 mode
- Measuring Point : SW301, main board
- Place the Raster in Center of the bezel.

4-3 Rotation Setting

- Video Signal : Cross Hatch pattern in 64kHz, 1024 mode
- Adjust the tilt of screen by using the MENU, ▲, ▼ and select keys.

4-4 Color Setting

- Adhere color Analyzer sensor closely to CRT center.
- Connect the Factory Adjustment jig to P601 on the main board.
- Video mode : 64kHz, 1024 mode

1) Color Temperature 9300°K Setting
   - Video Signal : Back Raster pattern
   - Select " 9300 " by using the MENU, ▲, ▼ and SELECT keys.

   ① Cut-off Setting
   - Select " Cut-off " by using the ▲, ▼ and SELECT keys.
   - Press the SELECT key to get the desired R, G or B Cut-off.
   - Press the ▲ or ▼ keys to limit the X and Y color coordinate.
   - Limits : X=0.281±0.02, Y=0.311±0.02

   ② Back Raster Setting
   - Adjust the brightness of Back Raster by pressing the ▲ and ▼ keys of Brightness.
   - Limits : Visible~6 cd/m^2

   ③ Drive Setting
   - Video signal : 2" square white box
   - Select the " Drive " by the using, ▼, ▲ and select keys.
   - Adjust the brightness go to 80~100 cd/m^2 by pressing the ▲ and ▼ keys of contrast.
   - Press the SELECT key to get the desired R or B drive.
   - Press the ▲ or ▼ keys to limit the X and Y color coordinate.
   - Limits : x=0.281±0.02, Y=0.311±0.02

   ④ Contrast Setting
   - Adjust the brightness of 2" square white box by pressing the ▲ and ▼ keys of contrast.
   - Limits : 160±5 cd/m^2

2) Color Temperature 6500°K Setting
   - Video Signal : Back Raster pattern
   - Select " 6500 " by using the MENU, ▲, ▼ and SELECT keys.

   ① Cut-off Setting
   - Select " Cut-off " by using the ▲, ▼ and SELECT keys.
   - Press the SELECT key to get the desired R, G or B Cut-off.
   - Press the ▲ or ▼ keys to limit the X and Y color coordinate.
   - Limits : X=0.313 ± 0.02, Y=0.329 ± 0.02

   ② Back Raster Setting
   - Adjust the brightness of Back-Raster by pressing the ▲ and ▼ keys of brightness
   - Limits : Visible~6 cd/m^2

   ③ Drive, contrast Setting
   The method of Adjust is same to 9300° K.
   The color coordinate is X=0.313±0.02, Y=0.329±0.02.

4-5. Geometry Setting

- Adhere template closely to the CRT surface.
- Video Signal : Cross hatch pattern in 31.5kHz to 70kHz expectively.
- Adjust the all items by using the MENU, ▲, ▼ and SELECT keys.

1) H-Position Setting
   - Place the screen in center of the horizontal direction.

2) H-Size Setting
   - Adjust the horizontal size of the screen to 300±2 mm.

3) V-Position Setting
   - Place the screen in center of the vertical direction.

4) V-Size Setting
   - Adjust the vertical size of the screen to 225±2 mm.

5) Pincushion Setting
   - Make the straight line to the vertical right and left line of screen.

6) Trapezoid Setting
   - Make the same size to the horizontal up and bottom size of screen.

4-6 Save

After the above setting, press the Recall key to save the setting.

* After adjusting, remove the Factory Adjustment JIG.

4-7 Focus

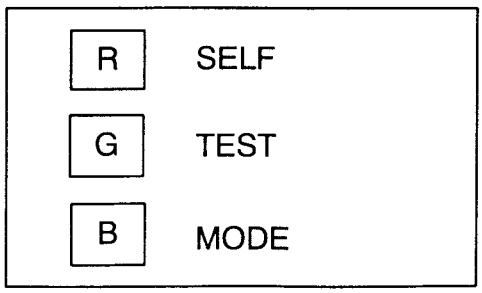
- Video Signal : Full "H" character pattern in 64kHz.
- Adjust H/V Focus VR on the top of the FBT so that the image of whole screen looks clear.

5. X-Ray Protection Test

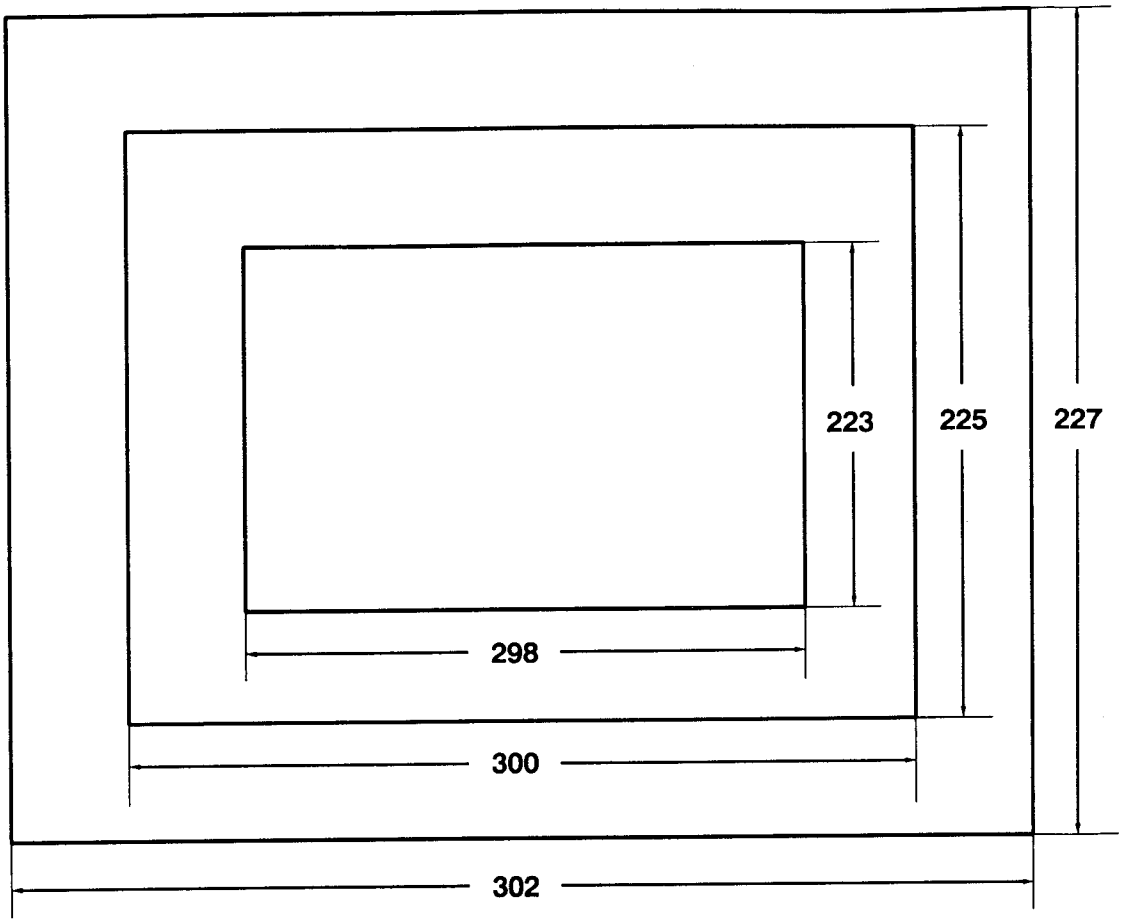
- In any signal input condition, short R303 (main board) by using the JIG.
- At this moment, check out whether raster disappears.
- Remove the JIG.
- After the power switch of the set off and on, check out proper working.

6. Burn-In

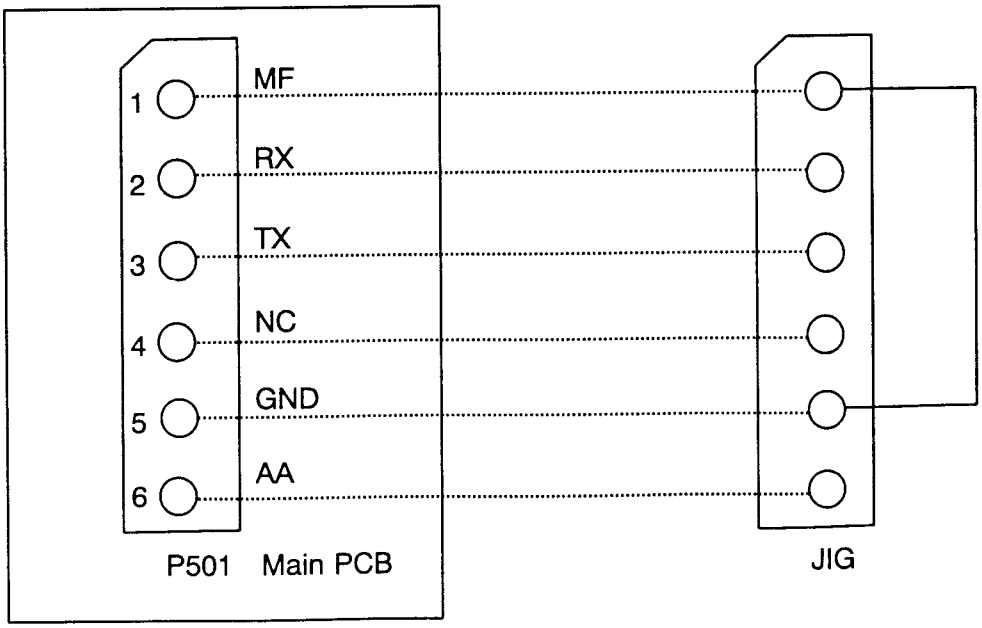
- When the signal cable is removed, check out the following OSD images, SELF TEST MODE, on the screen.



Attachment 1. Alignment Template



Attachment 2. Factory Adjustment JIG



SPECIFICATION

CRT	SIZE	17" (15.7" viewable) Diagonal, Flat
	Dot Pitch	0.27 mm or 0.28 mm
	Type	Non-glare, Anti-Static
Input	Signal	R.G.B Analog
	Connector	15 pin D-Type
SYNC	H-F	30~70 kHz(Automatic)
	V-F	50~150 Hz(Automatic)
Video Bandwidth		85MHz(-3 dB)
Display	Area(H×V)	300×225mm (Max. OVERSCAN)
	Color	Infinite
Resolution		Max 1280×1024(64KHz/60Hz)
User Controls & OSD Controls		Power Switch, Brightness, Contrast, H/V Size, H/V position, Pincushion, Trapezoid, Degauss, Color, Rotation, Recall, Preset Timing
Power Management		As per VESA Standard, Lower than EPA's recommendation
VESA DDC 1/2B		Basic
Compatibility		VESA, 8514/A, XGA, EVGA, MAC II
Power Source		100 - 240 VAC(Universal Power) 1.3A 90W
Safety & Regulation	MPR II	HL-7870A
	TCO92	HT-7870A
	EMI	FCC B, CE
	Safety	UL, CSA, TÜV-GS, ISO-9241-3, DHHS, NEMKO, DEMKO, FIMKO, SEMKO
Temperature	Operating	5 to 35 degree celsius
	Storage	-30 to 60 degree celsius
Humidity	Operating	35 % to 80 %(Non-condensing)
	Storage	30 % to 85 %
Weight		Unit : 15.8Kg Carton : 18.2Kg
Dimension(W×H×Dmm)		With/Swivel : 422×410×447.3 mm Without/Swivel : 422×355×447.3 mm

* Specification is subject to change without notice for performance improvement.

CRITICAL PARTS SPECIFICATION

STV7778

HORIZONTAL

- DUAL PLL CONCEPT
- SELF-ADAPTIVE (30 TO 65kHz)
- X-RAY PROTECTION INPUT
- DC ADJUSTABLE DUTY-CYCLE
- INTERNAL 1st PLL LOCK/UNLOCK IDENTIFICATION
- WIDE RANGE DC CONTROLLED H-POSITION
- ON/OFF SWITCH (FOR PWR MANAGEMENT)
- TWO H-DRIVE POLARITIES

VERTICAL

- VERTICAL RAMP GENERATOR
- 45 TO 150Hz AGC LOOP
- DC CONTROLLED V-AMP, V-POS, S-AMP AND S-CENTERING
- ON/OFF SWITCH

B+ REGULATOR

- INTERNAL PWM GENERATOR FOR B+ CURRENT MODE STEP-UP CONVERTER
- DC ADJUSTABLE B+ VOLTAGE
- OUTPUT PULSES SYNCHRONISED ON HORIZONTAL FREQUENCY
- INTERNAL MAX CURRENT LIMITATION

EWPCC

- VERTICAL PARABOLA GENERATOR WITH DC CONTROLLED KEYSTONE AND AMPLITUDE

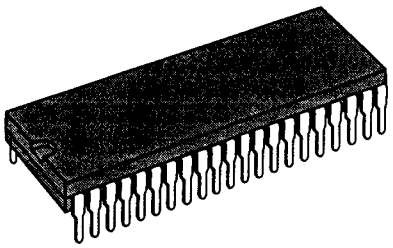
GENERAL

- POS/NEG H AND V SYNC POL
- SEPARATED H AND V TTL INPUT
- SAFETY BLANKING OUTPUT

DESCRIPTION

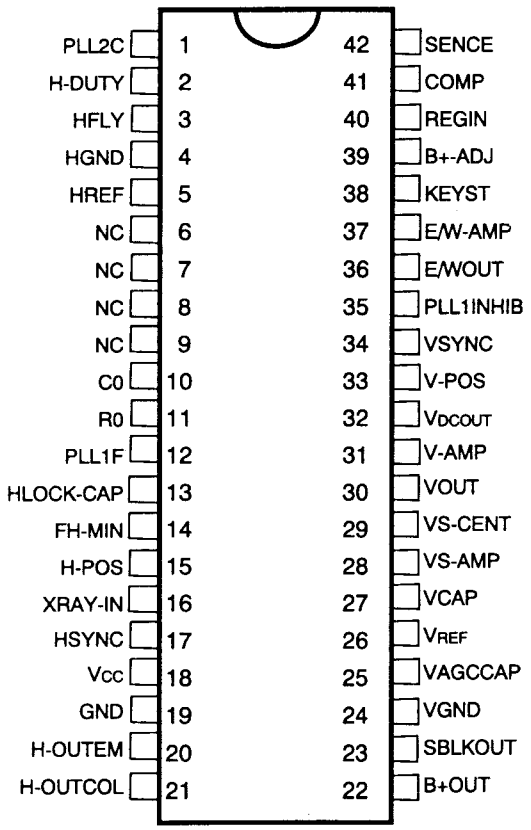
The STV7778 is a monolithic integrated circuit assembled in a 42 pins shrunk dual in line plastic package.
The goal of this IC is to control all the functions related to the horizontal and vertical deflection in a multimodes or multisync monitor.
As can be seen in the block diagram, the STV7778 includes the following functions:

- Positive or Negative sync polarities,
- auto-sync horizontal processing,
- H-PLL lock/unlock identification,
- Auto-sync vertical processing,
- East/West signal processing block,
- B+ controller,
- Safety blanking output.

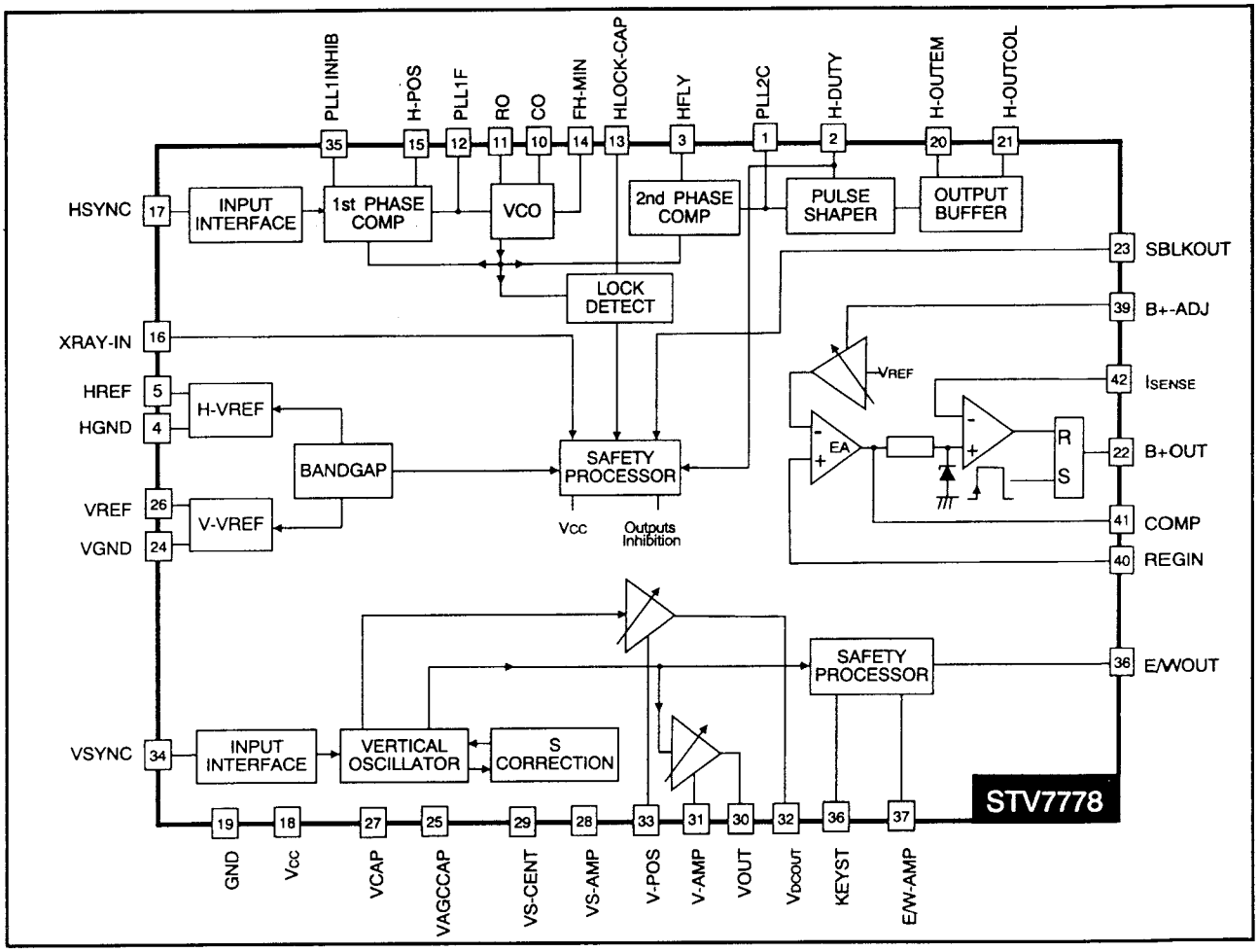


SHRINK42
(Plastic Package)
ORDER CODE : STV7778

PIN CONNECTIONS



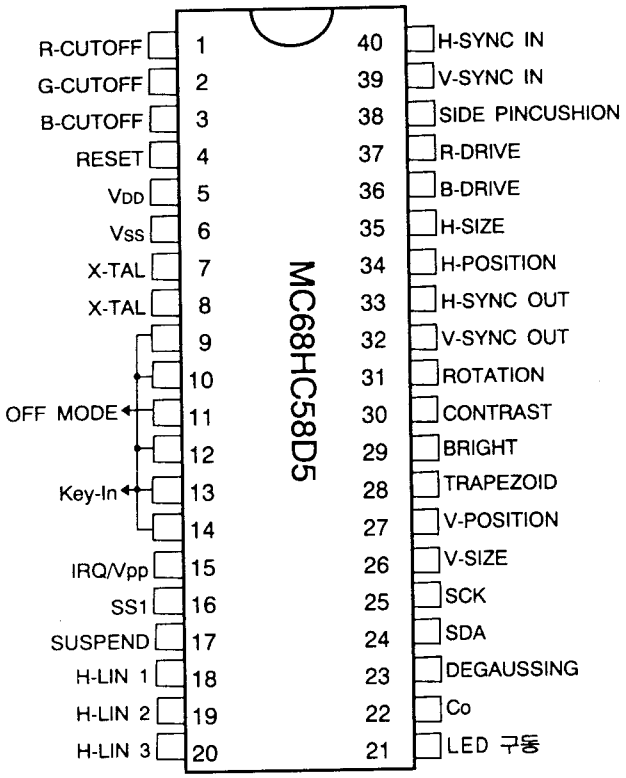
BLOCK DIAGRAM



PIN-OUT DESCRIPTION

Pin N°	Name	Function
1	PLL2C	Second PLL Loop Fiter
2	H-DUTY	Dc Control of Horizontal Drive Output Pulse Duty-cycle. If this pin is grounded, the horizontal and vertical outputs are inhibited. By connecting a capacitor on this pin a soft-start function may be realized on h-drive output.
3	H-FLY	Horizontal Flyback Input (Positive Polarity)
4	H-GND	Horizontal Section Ground. Must be connected only to components related to H blocks.
5	H-REF	Horizontal Section Reference Voltage. Must be filtered by capacitor to Pin 4
6	NC	
7	NC	
8	NC	
9	NC	
10	C0	Horizontal Oscillator Capacitor. To be connected to Pin 4.
11	R0	Horizontal Oscillator Resistor. To be connected to Pin 4.
12	PLL1F	First PLL Loop Filter. To be connected to Pin 4.
13	HLOCK-CAP	First PLL Lock/Unlock Time Constant Capacitor. Capacitor filtering the frequency change detected on Pin 13. When frequency is changing, a blanking pulse is generated on Pin 23, the duration of this pulse is proportionnal to the capacitor on Pin 13. To be connected to Pin 4.
14	FH0MIN	DC Control for Free Running Frequency Setting. Comming from DAC output or DC voltage generated by a resistor bridge connected between Pin 5 and 4.
15	H-POS	DC Control for Horizontal Centering
16	XRAY-IN	X-RAY Protection Input (with internal latch function)
17	H-SYNC	TTL Horizontal Sync Input
18	V_{CC}	Supply Voltage (12V Typical)
19	GND	Ground
20	H-OUTEM	Horizontal Drive Output (emiter of internal transistor)
21	H-OUTCOL	Horizontal Drive Output (open collector of internal transistor)
22	B+ OUT	B+ PWM Regulator Output
23	SBLK OUT	Safety Blanking Output. Activated during frequency changes, when X-RAY input is triggered or when VS is too low.
24	VGND	Vertical Section Signal Ground
25	VAGCCAP	Memory Capacitor for Automatic Gain Control Loop in Vertical Ramp Generator
26	V_{REF}	Vertical Section Reference Voltage
27	VCAP	Vertical Sawtooth Generator Capacitor
28	VS-AMP	DC Control of Vertical S Shape Amplitude
29	VS-CENT	DC Control of Vertical S Centering
30	VOUT	Vertical Ramp Output (with frequency independant amplitude and S-correction)
31	V-AMP	DC Control of Vertical Amplitude Adjustment
32	V_{DCOUT}	Vertical Position Reference Voltage Output Temperature Matched with V-AMP Output
33	V-POS	DC Control of Vertical Position Adjustment
34	VSYNC	Vertical TTL Sync Input
35	PLL1INHIB	TTL Input for PLL1 Output Current Inhibition (To be used in case of comp sync input signal)
36	E/WOUT	East/West Pincushion Correction Parabola Output
37	E/W-AMP	DC Control of East/West Pincushion Correction Amplitude
38	KEYST	DC Control of Keystone Correction
39	B+ ADJ	DC Control of B+ Adjustment
40	REGIN	Regulation Input of B+ Control Loop
41	COMP	B+ Error Amplifier Output for Frequency Compensation and Gain Setting
42	I_{SENSE}	Sensing of External B+ Switching Transistor Emiter Current

MC68HC705BD3P



24LC04

4K 2.5V CMOS Serial EEPROMs

FEATURES

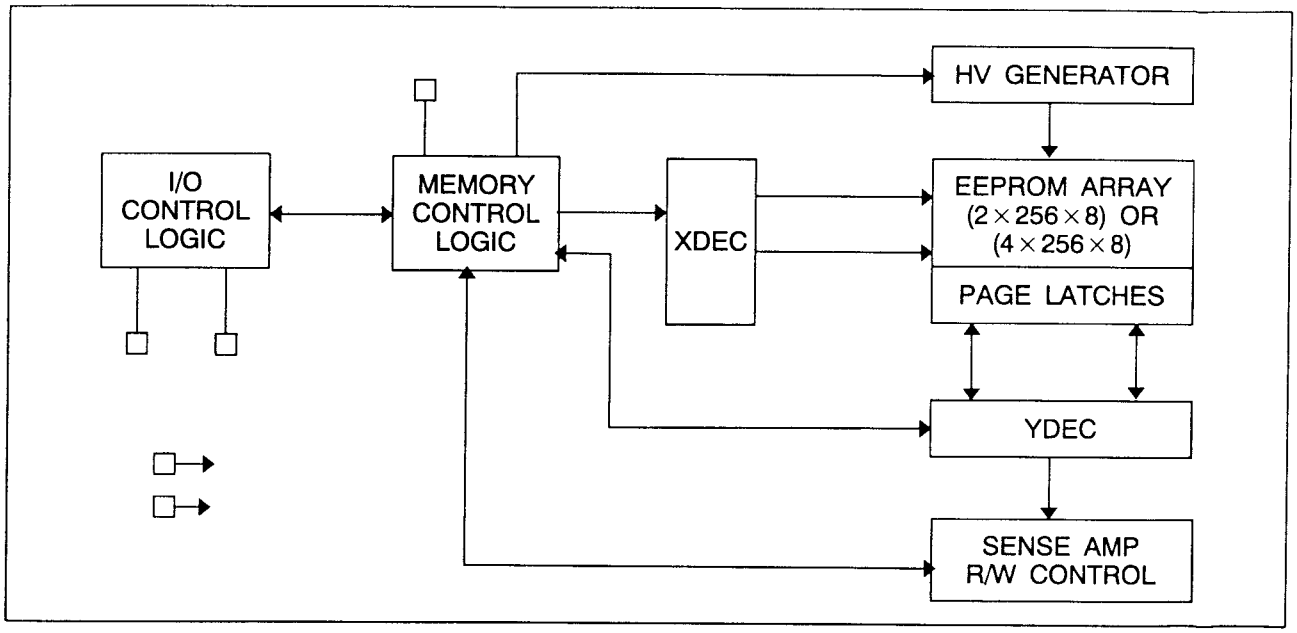
- Single supply with operation down to 2.5V
- Low power CMOS technology
  - 1mA active current typical
  - 10uA standby current typical at 5.5V
  - 5 uA standby current typical at 3.0V
- Organized as two or fore blocks of 256 bytes ($2 \times 256 \times 8$) and ($4 \times 256 \times 8$)
- Two wire serial interface bus, I^2C^{TM}
- Schmitt tigger, filtered inputs for noise suppression
- Output slope control to eliminate ground bounce
- 100 KHz (2.5V) and 400 KHz (5V) compatibility
- Self-timed write cycle (including auto-erase)

- Page-write buffer for up to 16 bytes
- 2 ms typical write cycle time for page-write
- Hardware write cycle time for page-write
- Can be operated as a serial ROM
- Factory programming (OTP) available
- ESD protection > 4,000V
- 1,000,000 ERASE/WRITE cycles (typical)
- Data retention > 40 years
- 8-pin DIP, 8-lead or 14-lead SOIC packages
- Available for extended temperature ranges
  - Commercial : 0℃ to +70℃
  - Industrial : -40℃ to +85℃

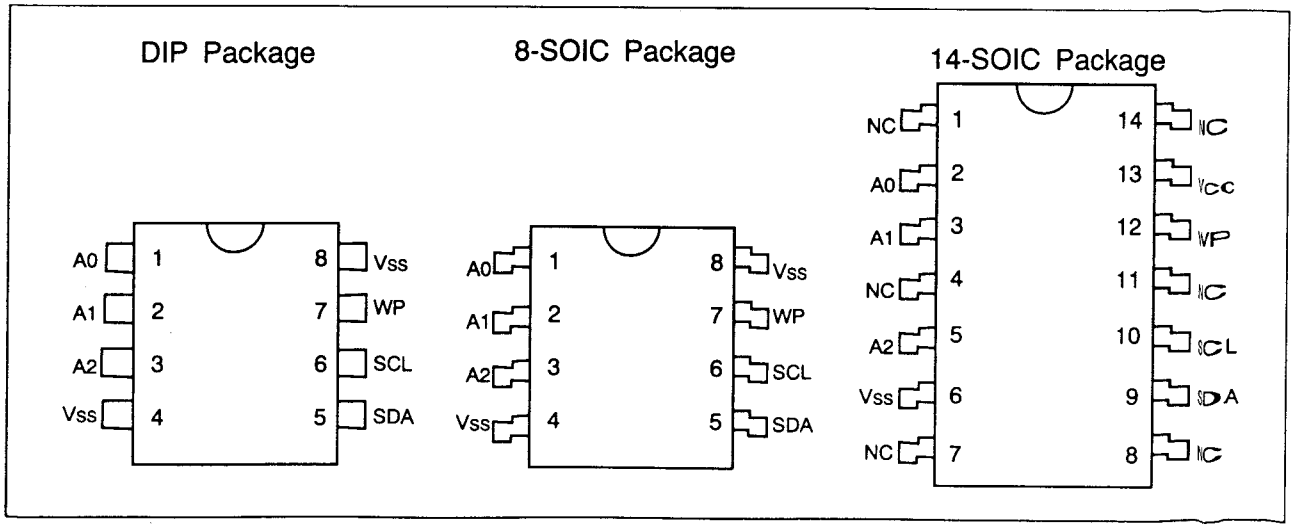
DESCRIPTION

The Microchip Technology Inc. 24LC04B/08B is a 4K-or 8K-bit Electrically Erasable PROM. The device is organized as two or four blocks of 256×8 bit memory with a two wire serial interface. Low voltage design pemits operation down to 2.5 volts with standby and active currents of obly 5 uA and 1 mA respectively. The 24LC04B/08B also has a page-write capability for up to 16 bytes of data. The 24LC 04B/08B is available in the standard 8-pin DIP and both 8-lead and 14-lead surface mount SOIC packages.

BLOCK DIAGRAM



PIN CONFIGURATION

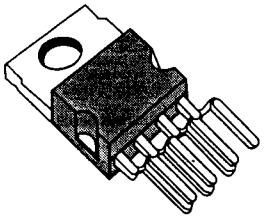


PC is a trademark of Philips Corporation

TDA9302H

TV VERTICAL DEFLECTION OUTPUT CIRCUIT

- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION



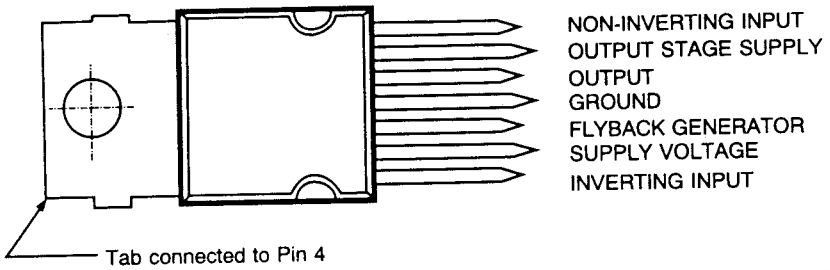
HEPTAWATT
(Plastic Package)

ORDER CODE : TDA9302H

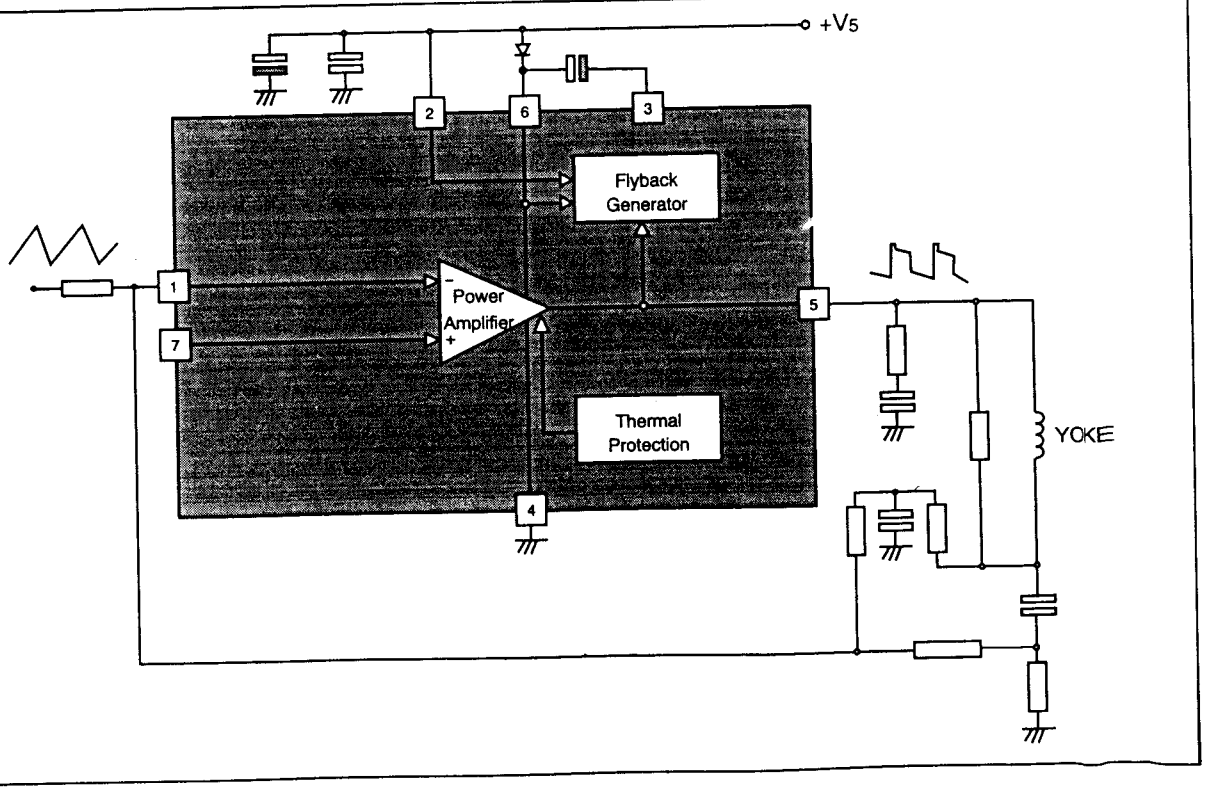
DESCRIPTION

The TDA9302H is a monolithic integrated circuit in HEPTAWATT™ package. It is a high efficiency power booster for direct driving of vertical windings of TV yokes. It is intended for use in Color and B & W television as well as in monitors and displays.

PIN CONNECTIONS (top view)



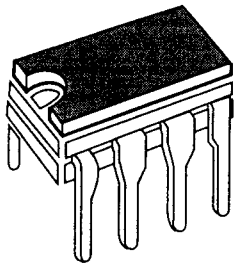
BLOCK DIAGRAM



UC3842

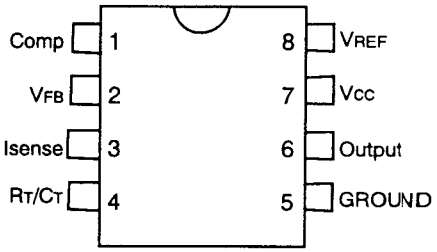
CURRENT MODE PWM CONTROLLER

- OPTIMIZED FOR OFF-LINE AND DC TO DC CONVERTERS
- LOW START-UP CURRENT (< 1mA)
- AUTOMATIC FEED FORWARD COMPENSATION
- PULSE-BY-PULSE CURRENT LIMITING
- ENHANCED LOAD RESPONSE CHARACTERISTICS
- UNDER-VOLTAGE LOCKOUT WITH HYSTERESIS
- DOUBLE PULSE SUPPRESSION
- HIGH CURRENT TOTEM POLE OUTPUT
- INTERNALLY TRIMMED BANDGAP REFERENCE
- 500 KHz OPERATION
- LOW Ro ERROR AMP

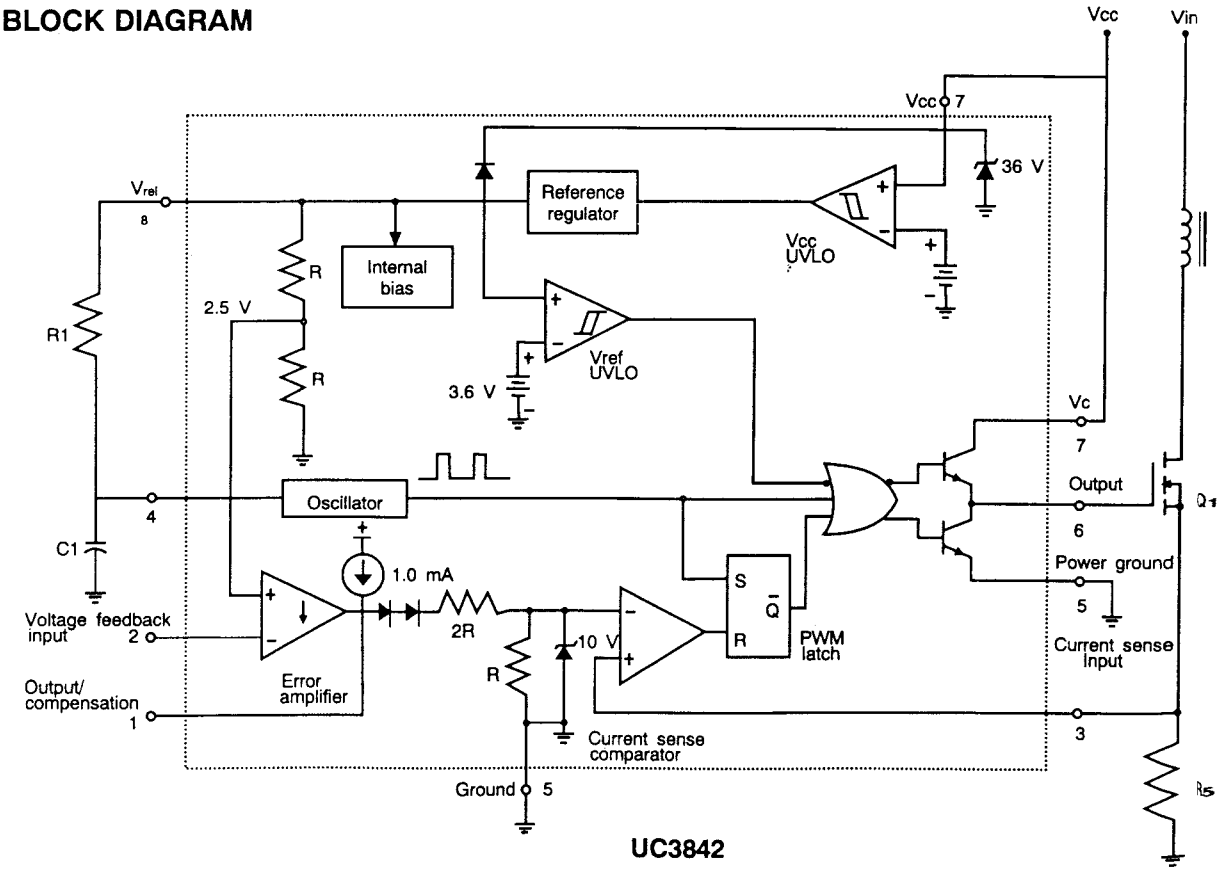


Minidip

PIN CONNECTIONS



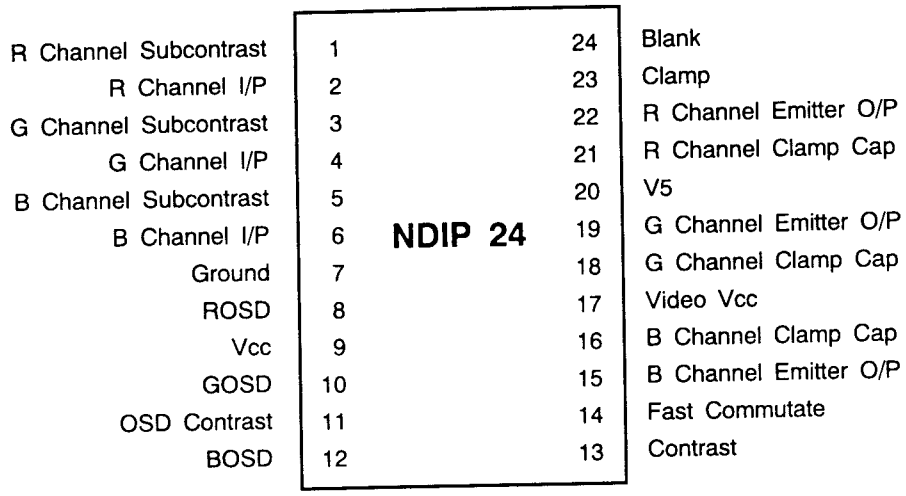
BLOCK DIAGRAM



UC3842

MC13282A

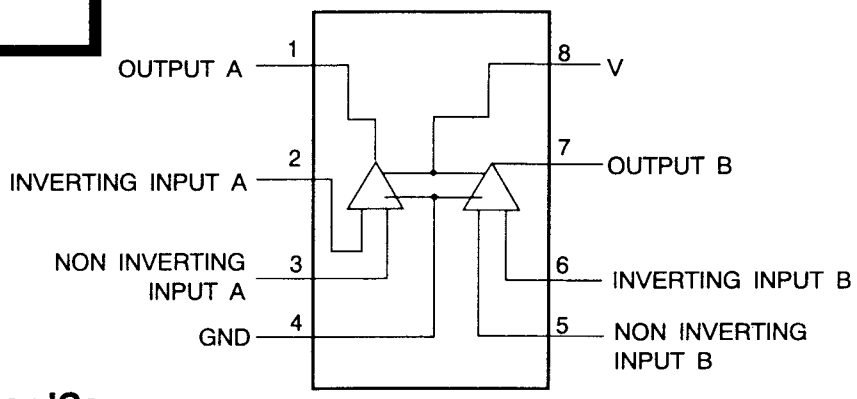
PIN ASSIGNMENT (TOP VIEW)



OPERATING CONDITION

PARAMETER	CONDITION	PIN #	Min	Typ	Max	UNIT
POWER SUPPLY VOLTAGE		9.17	7.6	8	8.4	Vdc
CONTRAST CONTROL		13	0		5	Vdc
SUB-CONTRAST CONTROL		1, 3, 5	0		5	Vdc
BLANKING INPUT THRESHOLD		24		1.25		V
CLAMPING INPUT THRESHOLD		23		3.75		V
VIDEO SIGNAL INPUT	at 75Ω TERMINATION	2, 4, 6		0.7	1.0	Vpp
OUTPUT SIGNAL AMP.	V2, V4, V6=0.7Vpp V1, V3, V5, V13=5V	15, 19, 22	3.6	4		Vpp
EMITTER DC LEVEL		15, 19, 22	1.0	1.2	1.4	Vdc
VIDEO BANDWIDTH				100		MHz

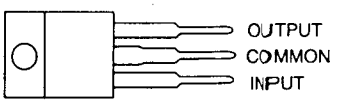
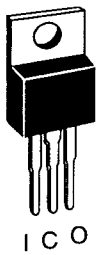
LM358



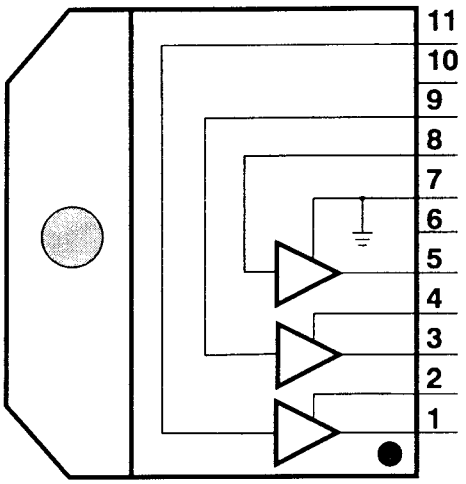
Voltage Detector ICs

Type No.	Function	Operating Voltage (V)	Package
KIA7019P/F ~7045P/F	CPU Reset, Low Voltage Detector	1.9 ~ 4.5	TO - 92
KIA7419P/F ~7445P/F	CPU Reset, High Voltage Detector	1.9 ~ 4.5	

Voltage Regulator ICs

Type No.	Function	Typ Vo (V)	Max.			Package
			Io(A)	Vin(V)	PD(W)	
KIA7805P/PI	1.0A 3-Terminal Regulaor	5	1.0	35	20.8	 TO-220AB  I C O
KIA7806P/PI		6				
KIA7808P/PI		8				
KIA7809P/PI		9				
KIA7810P/PI		10				
KIA7812P/IP		12				
KIA7815P/PI		15				
KIA7818P/PI		18		40		
KIA7820P/PI		20				
KIA7824P/PI		24				

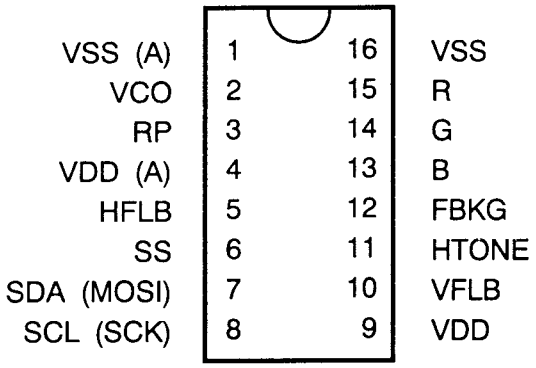
LM2405



NOTES

1) OUTPUT SWING CAPABILITY
   50Vpp for Vcc = 80V
   50Vpp for Vcc = 70V
   30Vpp for Vcc = 60V
2) INPUT RANGE : 1~7V
3) CRT DRIVER FOR 1024×768(N-I) AND SVGA DISPLAY RESOLUTION COLOR MONITORS.
4) PIXEL CLOCK FREQUENCY UP TO 135MHz
5) V_{BIAS} = 8V ~ 15V

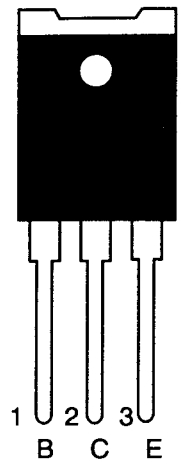
MC141540P4



MONITOR ON-SCREEN DISPLAY

- Fixed Resolution : 320 (CGA) Dots per Line
- Fully Prograammable Character Array of 10 Rows by 24 Columns
- 375 Bytes Direct Mapping Display RAM Architecture
- Internal PLL Generates a Wide-Ranged System Clock
- For High End Monitor Application, Maximum Horizontal Frequency is 100 KHz 32MHz Dot Clock)
- Programmable Vertical Hight of Character to Meet Multi-Sync Requirement
- Programmable Vertical and Horizontal Positioning for Display Center
- 128 Characters and Graphic Symbols ROM
- 10×16 Dot Matrix Character
- Character by Character Color Selection
- A Maximum of Four Selectable Color per Row
- Double Character Bordering or Shadowing
- There Fully Programmable Background Windows with Overlapping Capability
- Single Positive 5 V Supply
- MC141540P4 is replacement of XC141540P with two symbols added in ROM addresses "5C" and "5E"

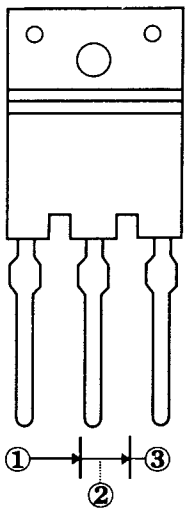
Power Transistor



(BU2525AF)

Rating	Symbol	BU2525AF	Unit
Base Breakdown Voltage	V_{CBO}	1500	Vdc
Emitter Sustaining Voltage	$V_{CEO(sus)}$	800	Vdc
Current-Continuous -Pulsed(1)	I_C I_{CM}	12 30	Adc
Current-Continuous -Pulsed(1)	I_B I_{BM}	8 12	Adc

Damper Diode



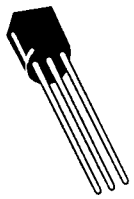
(FMP-3FU)

Rating	Symbol	FMP-3FU		Unit
Transient Peak Reverse Voltage	V_{RSM}	A 600	B 1500	V
Peak Reverse Voltage	V_{RM}	600	1500	V
Average Foward Current	$I_{F(AV)}$	5.0		A
Peak Surge Forward Current	I_{FSM}	5.0		A
Reverse Recevery Time	T_{RR}	0.1 max.	0.7 max.	us

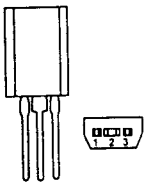
TRANSISTORS

Type No.	MAX. RATINGS			VCE(SET)	Max					Package
	VCEO (V)	IC (mA)	PC (mW)	(V)	IC (mA)	IB (mA)	1	2	3	
KTA200	-50	-500	625	-0.25	-100	-10	E	C	B	TO-92
KTA1273	-30	-2.0A	1W	-2.0	-1.5A	-3.0	E	C	B	TO-92L
KTA1275	-160	-1.0A	1W	-1.5	-500	-50	E	C	B	TO-92L
KTA1268	-120	-100	400	-0.3	-10	-1	E	C	B	TO-92
KTC3400	120	100	625	0.3	10	1	E	C	B	TO-92
KTC200	50	500	625	0.25	100	10	E	C	B	TO-92
KTC3198	50	150	625	0.25	100	10	E	C	B	TO-92
2N3904	40	200	625	0.2	10	1	E	B	C	TO-92
KTC3205	30	2A	1W	2.0	1.5A	30	E	B	C	TO-92L
KTC3206	150	50	1W	0.5	10	1.0	E	C	B	TO-92L
KTC4368	150	1.5A	20W	1.5	500	50.0	B	C	E	TO-220IS
KRC102M	50	100	400	-0.3	-100	-0.88	E	C	B	TO-92M
2SK2141	600V (VDSS)	6A(ID)	35W (PT)	1.1Ω (MAX) RDS(ON)		±30V (VGSS)	G	D	S	TO-220IS
2SK2134	200V (VDSS)	5A(ID)	70W (PT)	0.4Ω (MAX) RDS(ON)		±30V (VGSS)	G	D	S	TO-220AB

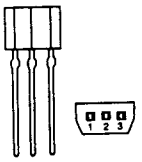
TO-92



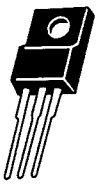
TO-92L



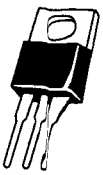
TO-92M



TO-220IS

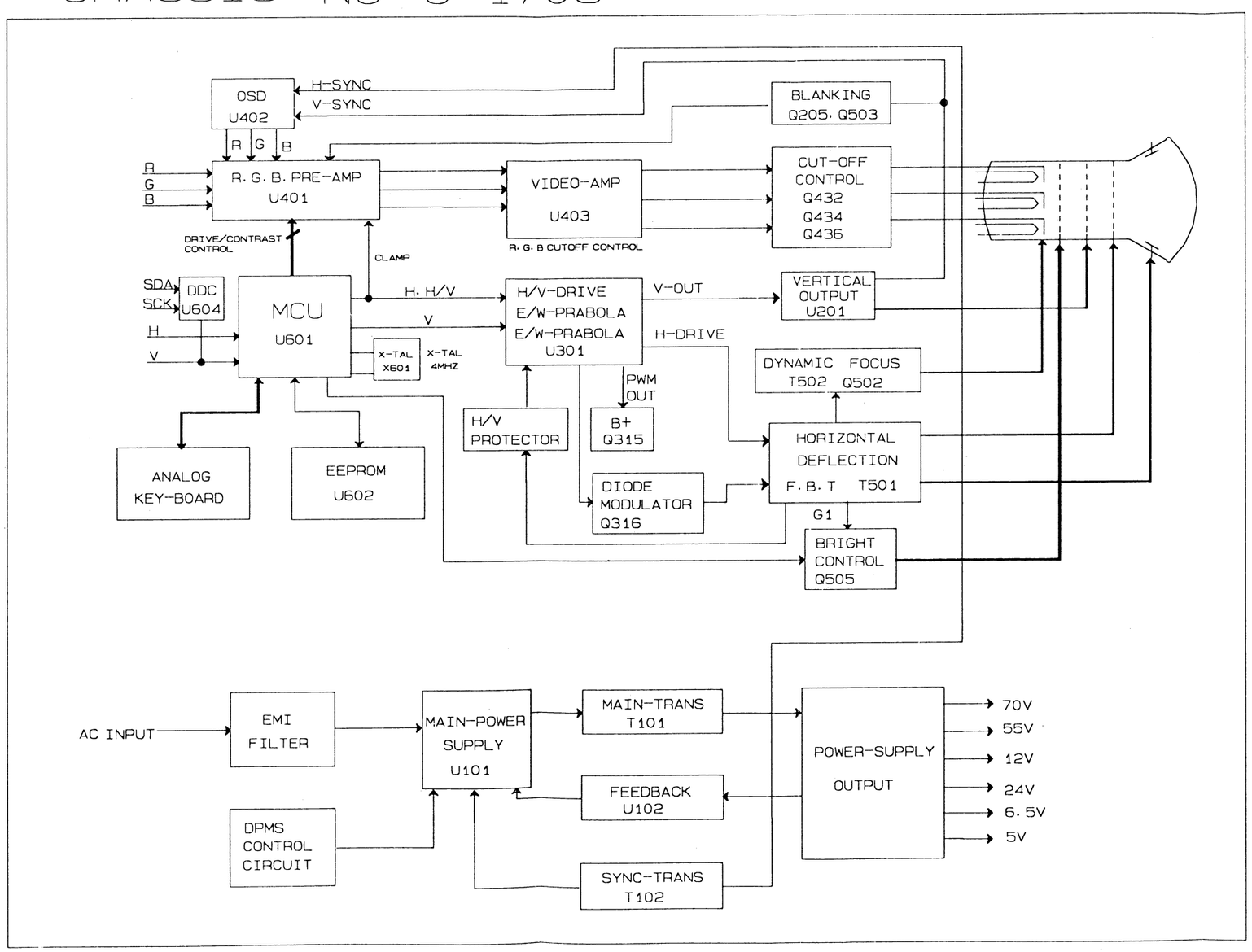


TO-220AB



BLOCK DIAGRAM

HL-7870A BLOCK-DIAGRAM
CHASSIS NO: C-1705



WARNING: THIS EQUIPMENT CONTAINS SAFETY CRITICAL COMPONENTS. ALL PARTS SHOWN IN THE ⚠ MARKS OF THE SCHEMATIC ARE SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURERS RECOMMENDED PARTS LIST FOR EXACT REPLACEMENTS.

NOTE:
1. RESISTANCE IS SHOWN IN OHM K=1,000 M=1,000,000 RATED POWER OF RESISTOR NOT NOTED IN SCHEMATIC DIAGRAM IS 1/8W C-CARBON.
2. CAPACITANCE IS SHOWN PF AND NOTED CAPACITANCES IS SHOWN UF. UF=1,000,000PF RATED VOLTAGE OF CONDENSOR NOT NOTED IN SCHEMATIC DIAGRAM IS 50V.
3. ABBREVIATION AND SYMBOL
   P: POLYSTER PP: POLYPROPYLENE
4. THIS SCHEMATIC DIAGRAM IS SUBJECTED TO CHANGE WITHOUT NOTICE FOR FURTHER IMPROVEMENT.

DWG. REV.	DESCRIPTION			DOC. NO.	DATE	APPROVAL
DWG. NO.	E42095222	SIGNATURE		DATE	INSP	SHEET NO.
TITLE		DWN	B. H. NAM	1996.07.02		1/1
HL-7870A/BLOCK_DIAGRAM		CHK	S. G. CHEUN	1996.07.02		
		APP	Y. G. BYUN	1996.07.02		

REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTICE : COMPONENTS MARKED WITH ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY.

ABBREVIATIONS:

RD R-CARBON	CK C-CERAMIC, HK
RS R-METAL OXIDE	CE C-ELECTROLYTIC
RX R-CEMENT	CC C-CERAMIC, TEMP
RN R-METAL(±1%)	CQ C-POLYESTER, C-POLYPROPYLENE
	CF C-METAL POLYESTER C-METAL POLYPROPYLENE

NOTE : COMPONENTS OF THIS PARTS LIST CAN BE CHANGED FOR QUALITY IMPROVEMENT WITHOUT INFORMATION.

1. PCB MAIN BOARD ASSY

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
1		B4008500100A	CABLE TIE	
2		B4213500801A	MOUNTING BUTTON	
3		B4213501101A	RUBBER BAR	
4		B4408002410A	SCREW,ST2 BIN(+) W/TW 3*8	
5		E4208512601	PCBA MAIN(I*),HL7870A EXP	
6		E4208412661	PCBA MAIN(A6*),HL-7870A	
7		E4208412651	PCBA MAIN(A5*),HL-7870A	
8		E4208412641	PCBA MAIN(A4*),HL-7870A	
9		304010058401	PCB-SINGLE,7870A MAIN F1	
10	B101	E42019099010	BEAD CORE	
11	B102	E42019099010	BEAD CORE	
12	B104	E42019099010	BEAD CORE	
13	B105	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
14	B301	E42019099010	BEAD CORE	
15	B302	E42019099010	BEAD CORE	
16	B303	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
17	B304	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
18	B305	E42019099010	BEAD CORE	
19	B307	E42019099010	BEAD CORE	
20	B501	E42019099010	BEAD CORE	
21	B601	E42019099010	BEAD CORE	
22	B602	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
23	C214	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
24	D101	DT1N4148	DIODE,1N4148 TAPING	
25	D102	DT1N4148	DIODE,1N4148 TAPING	
26	D103	DT1N4937	DIODE,1N4937 TAPING	
27	D104	DT1N4936	DIODE,400V 1.0A 1N4936	
28	D106	DTBYV26E	DIODE,BYV26E SORTED	
29	D109	DT1R5NU41	DIODE,1R5NU41 TAPING	
30	D110	DTUZ-18BSB	DIODE,ZENER UZ-18BSB	
31	D112	DT1N4003	DIODE,200V 1.0A TAP	
32	D113	DT1N4936	DIODE,400V 1.0A 1N4936	
33	D201	DT1N4002	DIODE,100V 1.0A TAP	
34	D202	DT1N4148	DIODE,1N4148 TAPING	
35	D302	DTBAT42	DIODE,BAT42	
36	D303	DT1N4936	DIODE,400V 1.0A 1N4936	
37	D304	DT1N4148	DIODE,1N4148 TAPING	
38	D305	DT1N5398	DIODE 1N5398 TAPING	
39	D306	DT1N5398	DIODE 1N5398 TAPING	
40	D307	DT1N4148	DIODE,1N4148 TAPING	
41	D309	DTUF4002	DIODE,UF4002	
42	D310	DT1N4936	DIODE,400V 1.0A 1N4936	
43	D311	DT1N4936	DIODE,400V 1.0A 1N4936	
44	D313	DT1N4148	DIODE,1N4148 TAPING	
45	D314	DTRGP15J	DIODE,600V/10UA 1.5A/1.2V	
46	D315	DTUZ-5.6BSB	DIODE,ZENER UZ-5.6BSB TAP	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
47	D316	DT1N4148	DIODE,1N4148 TAPING	
48	D317	DT1N5398	DIODE 1N5398 TAPING	
49	D319	DT1N4148	DIODE,1N4148 TAPING	
50	D323	DT1N4148	DIODE,1N4148 TAPING	
51	D501	DT1N4936	DIODE,400V 1.0A 1N4936	
52	D502	DT1N4936	DIODE,400V 1.0A 1N4936	
53	D503	DT1N4148	DIODE,1N4148 TAPING	
54	D504	DT1N4004	DIODE,400V 1.0A TAP	
55	D505	DT1NL20U	DIODE,1NL20U TAP	
56	D506	DT1N4004	DIODE,400V 1.0A TAP	
57	D507	DT1N4148	DIODE,1N4148 TAPING	
58	D508	DTUZ-5.6BSB	DIODE,ZENER UZ-5.6BSB TAP	
59	D509	DT1N4148	DIODE,1N4148 TAPING	
60	D510	DT1N4148	DIODE,1N4148 TAPING	
61	D512	DTUF4007	DIODE,UF4007	
62	D513	DTUF4007	DIODE,UF4007	
63	D514	DT1N4148	DIODE,1N4148 TAPING	
64	D517	DT1N4002	DIODE,100V 1.0A TAP	
65	D610	DT1N4148	DIODE,1N4148 TAPING	
66	D611	DTUZ-6.8BSB	DIODE,ZENER UZ-6.8BSB TAP	
67	D612	DTUZ-6.8BSB	DIODE,ZENER UZ-6.8BSB TAP	
68	D613	DT1N4148	DIODE,1N4148 TAPING	
69	D614	DT1N4148	DIODE,1N4148 TAPING	
70	D615	DT1N4148	DIODE,1N4148 TAPING	
71	D616	DT1N4148	DIODE,1N4148 TAPING	
72	D617	DT1N4148	DIODE,1N4148 TAPING	
73	D618	DT1N4148	DIODE,1N4148 TAPING	
74	D619	DT1N4148	DIODE,1N4148 TAPING	
75	D620	DT1N4148	DIODE,1N4148 TAPING	
76	D621	DT1N4148	DIODE,1N4148 TAPING	
77	J102	3753000024	WIRE JUM,52MM TAP. SDA 1/	
78	J103	3753000024	WIRE JUM,52MM TAP. SDA 1/	
79	J104	3753000024	WIRE JUM,52MM TAP. SDA 1/	
80	J105	3753000024	WIRE JUM,52MM TAP. SDA 1/	
81	J106	3753000024	WIRE JUM,52MM TAP. SDA 1/	
82	J109	3753000024	WIRE JUM,52MM TAP. SDA 1/	
83	J110	3753000024	WIRE JUM,52MM TAP. SDA 1/	
84	J111	3753000024	WIRE JUM,52MM TAP. SDA 1/	
85	J112	3753000024	WIRE JUM,52MM TAP. SDA 1/	
86	J113	3753000024	WIRE JUM,52MM TAP. SDA 1/	
87	J114	3753000024	WIRE JUM,52MM TAP. SDA 1/	
88	J116	3753000024	WIRE JUM,52MM TAP. SDA 1/	
89	J117	3753000024	WIRE JUM,52MM TAP. SDA 1/	
90	J118	3753000024	WIRE JUM,52MM TAP. SDA 1/	
91	J122	3753000024	WIRE JUM,52MM TAP. SDA 1/	
92	J123	3753000024	WIRE JUM,52MM TAP. SDA 1/	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
93	J201	3753000024	WIRE JUM,52MM TAP. SDA 1/	
94	J202	3753000024	WIRE JUM,52MM TAP. SDA 1/	
95	J203	3753000024	WIRE JUM,52MM TAP. SDA 1/	
96	J204	3753000024	WIRE JUM,52MM TAP. SDA 1/	
97	J205	3753000024	WIRE JUM,52MM TAP. SDA 1/	
98	J206	3753000024	WIRE JUM,52MM TAP. SDA 1/	
99	J207	3753000024	WIRE JUM,52MM TAP. SDA 1/	
100	J208	3753000024	WIRE JUM,52MM TAP. SDA 1/	
101	J301	3753000024	WIRE JUM,52MM TAP. SDA 1/	
102	J302	3753000024	WIRE JUM,52MM TAP. SDA 1/	
103	J304	3753000024	WIRE JUM,52MM TAP. SDA 1/	
104	J305	3753000024	WIRE JUM,52MM TAP. SDA 1/	
105	J306	3753000024	WIRE JUM,52MM TAP. SDA 1/	
106	J309	3753000024	WIRE JUM,52MM TAP. SDA 1/	
107	J310	3753000024	WIRE JUM,52MM TAP. SDA 1/	
108	J312	3753000024	WIRE JUM,52MM TAP. SDA 1/	
109	J313	3753000024	WIRE JUM,52MM TAP. SDA 1/	
110	J314	3753000024	WIRE JUM,52MM TAP. SDA 1/	
111	J315	3753000024	WIRE JUM,52MM TAP. SDA 1/	
112	J317	3753000024	WIRE JUM,52MM TAP. SDA 1/	
113	J319	3753000024	WIRE JUM,52MM TAP. SDA 1/	
114	J320	3753000024	WIRE JUM,52MM TAP. SDA 1/	
115	J321	3753000024	WIRE JUM,52MM TAP. SDA 1/	
116	J322	3753000024	WIRE JUM,52MM TAP. SDA 1/	
117	J323	3753000024	WIRE JUM,52MM TAP. SDA 1/	
118	J325	3753000024	WIRE JUM,52MM TAP. SDA 1/	
119	J326	3753000024	WIRE JUM,52MM TAP. SDA 1/	
120	J328	3753000024	WIRE JUM,52MM TAP. SDA 1/	
121	J329	3753000024	WIRE JUM,52MM TAP. SDA 1/	
122	J331	3753000024	WIRE JUM,52MM TAP. SDA 1/	
123	J332	3753000024	WIRE JUM,52MM TAP. SDA 1/	
124	J333	3753000024	WIRE JUM,52MM TAP. SDA 1/	
125	J334	3753000024	WIRE JUM,52MM TAP. SDA 1/	
126	J335	3753000024	WIRE JUM,52MM TAP. SDA 1/	
127	J336	3753000024	WIRE JUM,52MM TAP. SDA 1/	
128	J337	3753000024	WIRE JUM,52MM TAP. SDA 1/	
129	J338	3753000024	WIRE JUM,52MM TAP. SDA 1/	
130	J339	3753000024	WIRE JUM,52MM TAP. SDA 1/	
131	J340	3753000024	WIRE JUM,52MM TAP. SDA 1/	
132	J346	3753000024	WIRE JUM,52MM TAP. SDA 1/	
133	J347	3753000024	WIRE JUM,52MM TAP. SDA 1/	
134	J348	3753000024	WIRE JUM,52MM TAP. SDA 1/	
135	J349	3753000024	WIRE JUM,52MM TAP. SDA 1/	
136	J350	3753000024	WIRE JUM,52MM TAP. SDA 1/	
137	J351	3753000024	WIRE JUM,52MM TAP. SDA 1/	
138	J352	3753000024	WIRE JUM,52MM TAP. SDA 1/	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
139	J353	3753000024	WIRE JUM,52MM TAP. SDA 1/	
140	J354	3753000024	WIRE JUM,52MM TAP. SDA 1/	
141	J356	3753000024	WIRE JUM,52MM TAP. SDA 1/	
142	J357	3753000024	WIRE JUM,52MM TAP. SDA 1/	
143	J358	3753000024	WIRE JUM,52MM TAP. SDA 1/	
144	J359	3753000024	WIRE JUM,52MM TAP. SDA 1/	
145	J360	3753000024	WIRE JUM,52MM TAP. SDA 1/	
146	J361	3753000024	WIRE JUM,52MM TAP. SDA 1/	
147	J362	3753000024	WIRE JUM,52MM TAP. SDA 1/	
148	J364	3753000024	WIRE JUM,52MM TAP. SDA 1/	
149	J365	3753000024	WIRE JUM,52MM TAP. SDA 1/	
150	J368	3753000024	WIRE JUM,52MM TAP. SDA 1/	
151	J369	3753000024	WIRE JUM,52MM TAP. SDA 1/	
152	J370	3753000024	WIRE JUM,52MM TAP. SDA 1/	
153	J371	3753000024	WIRE JUM,52MM TAP. SDA 1/	
154	J372	3753000024	WIRE JUM,52MM TAP. SDA 1/	
155	J374	3753000024	WIRE JUM,52MM TAP. SDA 1/	
156	J375	3753000024	WIRE JUM,52MM TAP. SDA 1/	
157	J376	3753000024	WIRE JUM,52MM TAP. SDA 1/	
158	J377	3753000024	WIRE JUM,52MM TAP. SDA 1/	
159	J379	3753000024	WIRE JUM,52MM TAP. SDA 1/	
160	J380	3753000024	WIRE JUM,52MM TAP. SDA 1/	
161	J383	3753000024	WIRE JUM,52MM TAP. SDA 1/	
162	J384	3753000024	WIRE JUM,52MM TAP. SDA 1/	
163	J385	3753000024	WIRE JUM,52MM TAP. SDA 1/	
164	J387	3753000024	WIRE JUM,52MM TAP. SDA 1/	
165	J388	3753000024	WIRE JUM,52MM TAP. SDA 1/	
166	J389	3753000024	WIRE JUM,52MM TAP. SDA 1/	
167	J391	3753000024	WIRE JUM,52MM TAP. SDA 1/	
168	J393	3753000024	WIRE JUM,52MM TAP. SDA 1/	
169	J394	3753000024	WIRE JUM,52MM TAP. SDA 1/	
170	J395	3753000024	WIRE JUM,52MM TAP. SDA 1/	
171	J396	3753000024	WIRE JUM,52MM TAP. SDA 1/	
172	J397	3753000024	WIRE JUM,52MM TAP. SDA 1/	
173	J398	3753000024	WIRE JUM,52MM TAP. SDA 1/	
174	J399	3753000024	WIRE JUM,52MM TAP. SDA 1/	
175	J501	3753000024	WIRE JUM,52MM TAP. SDA 1/	
176	J502	3753000024	WIRE JUM,52MM TAP. SDA 1/	
177	J504	3753000024	WIRE JUM,52MM TAP. SDA 1/	
178	J505	3753000024	WIRE JUM,52MM TAP. SDA 1/	
179	J506	3753000024	WIRE JUM,52MM TAP. SDA 1/	
180	J507	3753000024	WIRE JUM,52MM TAP. SDA 1/	
181	J510	3753000024	WIRE JUM,52MM TAP. SDA 1/	
182	J511	3753000024	WIRE JUM,52MM TAP. SDA 1/	
183	J512	3753000024	WIRE JUM,52MM TAP. SDA 1/	
184	J513	3753000024	WIRE JUM,52MM TAP. SDA 1/	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
185	J514	3753000024	WIRE JUM,52MM TAP. SDA 1/	
186	J516	3753000024	WIRE JUM,52MM TAP. SDA 1/	
187	J517	3753000024	WIRE JUM,52MM TAP. SDA 1/	
188	J518	3753000024	WIRE JUM,52MM TAP. SDA 1/	
189	J520	3753000024	WIRE JUM,52MM TAP. SDA 1/	
190	J521	3753000024	WIRE JUM,52MM TAP. SDA 1/	
191	J522	3753000024	WIRE JUM,52MM TAP. SDA 1/	
192	J523	3753000024	WIRE JUM,52MM TAP. SDA 1/	
193	J524	3753000024	WIRE JUM,52MM TAP. SDA 1/	
194	J525	3753000024	WIRE JUM,52MM TAP. SDA 1/	
195	J526	3753000024	WIRE JUM,52MM TAP. SDA 1/	
196	J528	3753000024	WIRE JUM,52MM TAP. SDA 1/	
197	J529	3753000024	WIRE JUM,52MM TAP. SDA 1/	
198	J531	3753000024	WIRE JUM,52MM TAP. SDA 1/	
199	J532	3753000024	WIRE JUM,52MM TAP. SDA 1/	
200	J533	3753000024	WIRE JUM,52MM TAP. SDA 1/	
201	J534	3753000024	WIRE JUM,52MM TAP. SDA 1/	
202	J535	3753000024	WIRE JUM,52MM TAP. SDA 1/	
203	J536	3753000024	WIRE JUM,52MM TAP. SDA 1/	
204	J539	3753000024	WIRE JUM,52MM TAP. SDA 1/	
205	J540	3753000024	WIRE JUM,52MM TAP. SDA 1/	
206	J541	3753000024	WIRE JUM,52MM TAP. SDA 1/	
207	J543	3753000024	WIRE JUM,52MM TAP. SDA 1/	
208	J544	3753000024	WIRE JUM,52MM TAP. SDA 1/	
209	J546	3753000024	WIRE JUM,52MM TAP. SDA 1/	
210	J547	3753000024	WIRE JUM,52MM TAP. SDA 1/	
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212	J549	3753000024	WIRE JUM,52MM TAP. SDA 1/	
213	J550	3753000024	WIRE JUM,52MM TAP. SDA 1/	
214	J553	3753000024	WIRE JUM,52MM TAP. SDA 1/	
215	J554	3753000024	WIRE JUM,52MM TAP. SDA 1/	
216	J555	3753000024	WIRE JUM,52MM TAP. SDA 1/	
217	J556	3753000024	WIRE JUM,52MM TAP. SDA 1/	
218	J557	3753000024	WIRE JUM,52MM TAP. SDA 1/	
219	J558	3753000024	WIRE JUM,52MM TAP. SDA 1/	
220	J559	3753000024	WIRE JUM,52MM TAP. SDA 1/	
221	J560	3753000024	WIRE JUM,52MM TAP. SDA 1/	
222	J562	3753000024	WIRE JUM,52MM TAP. SDA 1/	
223	J563	3753000024	WIRE JUM,52MM TAP. SDA 1/	
224	J564	3753000024	WIRE JUM,52MM TAP. SDA 1/	
225	J565	3753000024	WIRE JUM,52MM TAP. SDA 1/	
226	J570	3753000024	WIRE JUM,52MM TAP. SDA 1/	
227	J571	3753000024	WIRE JUM,52MM TAP. SDA 1/	
228	J572	3753000024	WIRE JUM,52MM TAP. SDA 1/	
229	J573	3753000024	WIRE JUM,52MM TAP. SDA 1/	
230	J574	3753000024	WIRE JUM,52MM TAP. SDA 1/	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
231	J575	3753000024	WIRE JUM,52MM TAP. SDA 1/	
232	J601	3753000024	WIRE JUM,52MM TAP. SDA 1/	
233	J603	3753000024	WIRE JUM,52MM TAP. SDA 1/	
234	J604	3753000024	WIRE JUM,52MM TAP. SDA 1/	
235	J605	3753000024	WIRE JUM,52MM TAP. SDA 1/	
236	J606	3753000024	WIRE JUM,52MM TAP. SDA 1/	
237	J607	3753000024	WIRE JUM,52MM TAP. SDA 1/	
238	J608	3753000024	WIRE JUM,52MM TAP. SDA 1/	
239	J609	3753000024	WIRE JUM,52MM TAP. SDA 1/	
240	J610	3753000024	WIRE JUM,52MM TAP. SDA 1/	
241	J611	3753000024	WIRE JUM,52MM TAP. SDA 1/	
242	J612	3753000024	WIRE JUM,52MM TAP. SDA 1/	
243	J613	3753000024	WIRE JUM,52MM TAP. SDA 1/	
244	J615	3753000024	WIRE JUM,52MM TAP. SDA 1/	
245	J616	3753000024	WIRE JUM,52MM TAP. SDA 1/	
246	J617	3753000024	WIRE JUM,52MM TAP. SDA 1/	
247	J618	3753000024	WIRE JUM,52MM TAP. SDA 1/	
248	J619	3753000024	WIRE JUM,52MM TAP. SDA 1/	
249	J620	3753000024	WIRE JUM,52MM TAP. SDA 1/	
250	J623	3753000024	WIRE JUM,52MM TAP. SDA 1/	
251	J624	3753000024	WIRE JUM,52MM TAP. SDA 1/	
252	J625	3753000024	WIRE JUM,52MM TAP. SDA 1/	
253	J626	3753000024	WIRE JUM,52MM TAP. SDA 1/	
254	J630	3753000024	WIRE JUM,52MM TAP. SDA 1/	
255	J631	3753000024	WIRE JUM,52MM TAP. SDA 1/	
256	J633	3753000024	WIRE JUM,52MM TAP. SDA 1/	
257	J634	3753000024	WIRE JUM,52MM TAP. SDA 1/	
258	J635	3753000024	WIRE JUM,52MM TAP. SDA 1/	
259	J636	3753000024	WIRE JUM,52MM TAP. SDA 1/	
260	J637	3753000024	WIRE JUM,52MM TAP. SDA 1/	
261	J639	3753000024	WIRE JUM,52MM TAP. SDA 1/	
262	J640	3753000024	WIRE JUM,52MM TAP. SDA 1/	
263	L102	E42019058370	COIL,PEAKING 220 UH AXIAL	
264	L306	E42019058370	COIL,PEAKING 220 UH AXIAL	
265	R101	RD-2P0T0105J	RES-CF,RD 1/2W 1M OHM J	
266	R102	RD-4P0T0561J	RES-CF,RD 1/4W 560 OHM J	
267	R103	RD-4P0T0155J	RES-CF,RD 1/4W 1.5M OHM J	
268	R104	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
269	R105	RD-4P0T0561J	RES-CF,RD 1/4W 560 OHM J	
270	R106	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
271	R111	RD-4P0T0470J	RES-CF,RD 1/4W 47 OHM J	
272	R112	RD-4P0T0471J	RES-CF,RD 1/4W 470 OHM J	
273	R113	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
274	R114	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
275	R115	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
276	R116	RD-4P0T0204J	RES-CF,RD 1/4W 200K OHM J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
277	R117	RD-4P0T0273J	RES-CF,RD 1/4W 27K OHM J	
278	R118	RD-4P0T0560J	RES-CF,RD 1/4W 56 OHM J	
279	R119	RD-4P0T0331J	RES-CF,RD 1/4W 330 OHM J	
280	R120	RD-4P0T0220J	RES-CF,RD 1/4W 22 OHM J	
281	R121	RD-4P0T0273J	RES-CF,RD 1/4W 27K OHM J	
282	R122	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
283	R125	RS01P0T0270J	RES-MOF,RS 1W 27 OHM J	
284	R126	RD-2P0T0101J	RES-CF,RD 1/2W 100 OHM J	
285	R128	RD-4P0T0681J	RES-CF,RD 1/4W 680 OHM J	
286	R129	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
287	R130	RD-4P0T0681J	RES-CF,RD 1/4W 680 OHM J	
288	R131	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
289	R132	RS01P0T0R56J	RES-MOF,RS 1W 0.56 OHM J	
290	R204	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
291	R205	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
292	R206	RD-4P0T0683J	RES-CF,RD 1/4W 68K OHM J	
293	R207	RD-4P0T0392J	RES-CF,RD 1/4W 3.9K OHM J	
294	R208	RD-4P0T0272J	RES-CF,RD 1/4W 2.7K OHM J	
295	R209	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
296	R210	RD-4P0T0681J	RES-CF,RD 1/4W 680 OHM J	
297	R211	RD-4P0T0101J	RES-CF,RD 1/4W 100 OHM J	
298	R212	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
299	R213	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
300	R214	RD-4P0T0392J	RES-CF,RD 1/4W 3.9K OHM J	
301	R215	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
302	R218	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
303	R219	RD-4P0T0123J	RES-CF,RD 1/4W 12K OHM J	
304	R220	RD-4P0T0562J	RES-CF,RD 1/4W 5.6K OHM J	
305	R221	RD-2P0T02R2J	RES-CF,RD 1/2W 2.2 OHM J	
306	R222	RD-4P0T0562J	RES-CF,RD 1/4W 5.6K OHM J	
307	R223	2405100004	RES-CF,510 0.5W J A	
308	R224	RD-2P0T01R0J	RES-CF,RD 1/2W 1.0 OHM J	
309	R225	RD-4P0T01R5J	RES-CF,RD 1/4W 1.5 OHM	
310	R227	RD-4P0T0682J	RES-CF,RD 1/4W 6.8K OHM J	
311	R228	RD-4P0T0222J	RES-CF,RD 1/4W 2.2K OHM J	
312	R229	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
313	R230	RD-4P0T0152J	RES-CF,RD 1/4W 1.5K OHM J	
314	R301	RD-4P0T0152J	RES-CF,RD 1/4W 1.5K OHM J	
315	R302	RD-4P0T0332J	RES-CF,RD 1/4W 3.3K OHM J	
316	R303	RN-4P0T1602F	RES-MF,RN 1/4W 16K OHM F	
317	R304	RN-4P0T2202F	RES-MF,RN 1/4W 22KOHM F	
318	R305	RD-4P0T0333J	RES-CF,RD 1/4W 33K OHM J	
319	R306	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
320	R307	RD-4P0T0562J	RES-CF,RD 1/4W 5.6K OHM J	
321	R308	RN-4P0T1002F	RES-MF,RN 1/4W 10K OHM F	
322	R309	RD-4P0T0683J	RES-CF,RD 1/4W 68K OHM J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
323	R310	RD-4P0T0153J	RES-CF,RD 1/4W 15K OHM J	
324	R311	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
325	R312	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
326	R313	RN-4P0T7501F	RES-MF,RN 1/4W 7.5KOHM F	
327	R314	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
328	R315	RN-4P0T1002F	RES-MF,RN 1/4W 10K OHM F	
329	R316	RN-4P0T2202F	RES-MF,RN 1/4W 22KOHM F	
330	R317	RN-4P0T2002F	RES-MF,RN 1/4W 20KOHM F	
331	R318	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
332	R319	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
333	R320	RD-4P0T0224J	RES-CF,RD 1/4W 220K OHM J	
334	R321	RD-4P0T0392J	RES-CF,RD 1/4W 3.9K OHM J	
335	R322	RD-4P0T0913J	RES-CF,RD 1/4W 91K OHM J	
336	R323	RD-4P0T0272J	RES-CF,RD 1/4W 2.7K OHM J	
337	R324	RD-4P0T0272J	RES-CF,RD 1/4W 2.7K OHM J	
338	R325	RD-4P0T0913J	RES-CF,RD 1/4W 91K OHM J	
339	R326	RD-4P0T0392J	RES-CF,RD 1/4W 3.9K OHM J	
340	R327	RD-4P0T0123J	RES-CF,RD 1/4W 12K OHM J	
341	R328	RD-4P0T0392J	RES-CF,RD 1/4W 3.9K OHM J	
342	R329	RD-4P0T0913J	RES-CF,RD 1/4W 91K OHM J	
343	R330	RD-4P0T0123J	RES-CF,RD 1/4W 12K OHM J	
344	R331	RD-4P0T0822J	RES-CF,RD 1/4W 8.2K OHM J	
345	R332	RD-4P0T0123J	RES-CF,RD 1/4W 12K OHM J	
346	R333	RD-4P0T0752J	RES-CF,RD 1/4W 7.5K OHM J	
347	R334	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
348	R335	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
349	R336	RD-4P0T04R7J	RES-CF,RD 1/4W 4.7 OHM J	
350	R337	RD-2P0T0221J	RES-CF,RD 1/2W 220 OHM J	
351	R338	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
352	R339	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
353	R340	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
354	R341	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
355	R342	RD-4P0T0272J	RES-CF,RD 1/4W 2.7K OHM J	
356	R343	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
357	R344	RD-4P0T0100J	RES-CF,RD 1/4W 10 OHM J	
358	R346	RD-4P0T0220J	RES-CF,RD 1/4W 22 OHM J	
359	R347	RD-2P0T0121J	RES-CF,RD 1/2W 120 OHM J	
360	R348	RS01P0T01R5J	RES-MOF,RS 1W 1.5 OHM J	
361	R349	RD-4P0T0390J	RES-CF,RD 1/4W 39 OHM J	
362	R350	RD-4P0T0473J	RES-CF,RD 1/4W 47K OHM J	
363	R351	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
364	R352	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
365	R353	RD-4P0T0473J	RES-CF,RD 1/4W 47K OHM J	
366	R354	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
367	R356	RD-4P0T0152J	RES-CF,RD 1/4W 1.5K OHM J	
368	R357	RS01P0T01R0J	RES-MOF,RS 1W 1.0 OHM J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
369	R358	RS01P0T01R0J	RES-MOF,RS 1W 1.0 OHM J	
370	R359	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
371	R360	RD-2P0T0220J	RES-CF,RD 1/2W 22 OHM J	
372	R361	RS01P0T0182J	RES-MOF,RS 1W 1.8KOHM J	
373	R362	RS01P0T0181J	RES-MOF,RS 1W 180 OHM J	
374	R363	RS01P0T0181J	RES-MOF,RS 1W 180 OHM J	
375	R364	RS01P0T0181J	RES-MOF,RS 1W 180 OHM J	
376	R365	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
377	R366	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
378	R367	RD-4P0T0183J	RES-CF,RD 1/4W 18K OHM J	
379	R368	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
380	R369	RD-4P0T0153J	RES-CF,RD 1/4W 15K OHM J	
381	R370	RD-4P0T0752J	RES-CF,RD 1/4W 7.5K OHM J	
382	R371	RD-4P0T0274J	RES-CF,RD 1/4W 270K OHM J	
383	R372	RD-4P0T0153J	RES-CF,RD 1/4W 15K OHM J	
384	R373	RD-4P0T0753J	RES-CF,RD 1/4W 75KOHM J	
385	R374	RD-4P0T0104J	RES-CF,RD 1/4W 100K OHM J	
386	R376	RD-4P0T0392J	RES-CF,RD 1/4W 3.9K OHM J	
387	R378	RD-4P0T0162J	RES-CF,RD 1/4W 1.6K OHM J	
388	R379	RD-2P0T0182J	RES-CF,RD 1/2W 1.8K OHM J	
389	R380	RD-4P0T0432J	RES-CF,RD 1/4W 4.3K OHM J	
390	R381	RD-2P0T0104J	RES-CF,RD 1/2W 100K OHM J	
391	R382	RD-4P0T04R7J	RES-CF,RD 1/4W 4.7 OHM J	
392	R387	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
393	R388	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
394	R389	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
395	R391	RD-4P0T0185J	RES-CF,RD 1/4W 1.8M OHM J	
396	R392	RD-4P0T0914J	RES-CF,RD 1/4W 910K OHM J	
397	R395	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
398	R396	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
399	R397	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
400	R398	RD-4P0T0223J	RES-CF,RD 1/4W 22K OHM J	
401	R399	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
402	R501	RD-2P0T0303J	RES-CF,RD 1/2W 30K OHM J	
403	R502	RD-4P0T0512J	RES-CF,RD 1/4W 5.1K OHM J	
404	R503	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
405	R504	RD-4P0T0473J	RES-CF,RD 1/4W 47K OHM J	
406	R505	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
407	R506	RD-4P0T0473J	RES-CF,RD 1/4W 47K OHM J	
408	R507	RD-4P0T0272J	RES-CF,RD 1/4W 2.7K OHM J	
409	R508	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
410	R509	RD-4P0T0394J	RES-CF,RD 1/4W 390K OHM J	
411	R510	RD-4P0T0242J	RES-CF,RD 1/4W 2.4K OHM J	
412	R511	RD-4P0T0222J	RES-CF,RD 1/4W 2.2K OHM J	
413	R512	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
414	R514	RD-4P0T0105J	RES-CF,RD 1/4W 1.0M OHM J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
415	R515	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
416	R516	RD-4P0T0513J	RES-CF,RD 1/4W 51K OHM J	
417	R517	RD-4P0T0563J	RES-CF,RD 1/4W 56K OHM J	
418	R518	RD-4P0T0682J	RES-CF,RD 1/4W 6.8K OHM J	
419	R519	RD-4P0T0432J	RES-CF,RD 1/4W 4.3K OHM J	
420	R521	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
421	R522	RN-4P0T5602F	RES-MF,RN 1/4W 56K OHM F	
422	R523	RD-4P0T0471J	RES-CF,RD 1/4W 470 OHM J	
423	R524	RD-4P0T0122J	RES-CF,RD 1/4W 1.2K OHM J	
424	R525	RD-2P0T0224J	RES-CF,RD 1/2W 220K OHM	
425	R526	RD-2P0T0334J	RES-CF,RD 1/2W 330K OHM J	
426	R527	RD-4P0T0201J	RES-CF,RD 1/4W 200 OHM J	
427	R528	RD-4P0T0134J	RES-CF,RD 1/4W 130K OHM J	
428	R529	RS01P0T0104J	RES-MOF,RS 1W 100K OHM J	
429	R540	RD-4P0T0105J	RES-CF,RD 1/4W 1.0M OHM J	
430	R566	RS01P0T01R8J	RES-MOF,RS 1W 1.8 OHM J	
431	R601	RD-4P0T04R7J	RES-CF,RD 1/4W 4.7 OHM J	
432	R610	RD-4P0T0221J	RES-CF,RD 1/4W 220 OHM J	
433	R611	RD-4P0T0203J	RES-CF,RD 1/4W 20K OHM J	
434	R612	RD-4P0T0203J	RES-CF,RD 1/4W 20K OHM J	
435	R613	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
436	R614	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
437	R615	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
438	R616	RD-4P0T0153J	RES-CF,RD 1/4W 15K OHM J	
439	R617	RD-4P0T0105J	RES-CF,RD 1/4W 1.0M OHM J	
440	R618	RD-4P0T0221J	RES-CF,RD 1/4W 220 OHM J	
441	R623	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
442	R624	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
443	R625	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
444	R626	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
445	R627	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
446	R628	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
447	R631	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
448	R637	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
449	R638	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
450	R639	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
451	R640	RD-4P0T0513J	RES-CF,RD 1/4W 51K OHM J	
452	R641	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
453	R642	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
454	R643	RD-4P0T0183J	RES-CF,RD 1/4W 18K OHM J	
455	R644	RD-4P0T0243J	RES-CF,RD 1/4W 24K OHM J	
456	R645	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
457	R646	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
458	R647	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
459	R648	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
460	R649	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
461	R650	RD-4P0T0393J	RES-CF,RD 1/4W 39K OHM J	
462	R651	RD-4P0T0202J	RES-CF,RD 1/4W 2.0K OHM J	
463	R652	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
464	R653	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
465	R654	RD-4P0T0101J	RES-CF,RD 1/4W 100 OHM J	
466	R655	RD-4P0T0101J	RES-CF,RD 1/4W 100 OHM J	
467	R656	RD-4P0T0101J	RES-CF,RD 1/4W 100 OHM J	
468	R657	RD-4P0T0153J	RES-CF,RD 1/4W 15K OHM J	
469	R659	RD-4P0T0101J	RES-CF,RD 1/4W 100 OHM J	
470	C105	CQ92BT2A222J	CAP-PE,100V 0.0022UF J	
471	C106	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
472	C107	CF93BT1J334J	CAP-MPE,63V 0.33UF J	
473	C108	CQ92BT2A332J	CAP-PE,100V 3300PF J	
474	C109	CQ92BT2A102J	CAP-PE,100V 0.001UF J	
475	C110	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
476	C111	CQ92BT2A152J	CAP-PE,100V 1500PF J	
477	C113	CE04BT1H101M	CAP-EL,SMS 50V 100UF M	
478	C116	CE04BT1E100M	CAP-EL,SMS 25V 10UF M	
479	C117	CK45BT3A101K	CAP-CD,1KV 100PF 10%	
480	C121	CE04BT1E101M	CAP-EL,SMS 25V 100UF M	
481	C122	CK45BT3A101K	CAP-CD,1KV 100PF 10%	
482	C125	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
483	C126	CE04BT1C470M	CAP-EL,SMS 16V 47UF M	
484	C127	CE04BT1E221M	CAP-EL,SMS 25V 220UF M	
485	C129	CE04BT1E100M	CAP-EL,SMS 25V 10UF M	
486	C130	CQ92BT2A333J	CAP-PE,100V 0.033UF J	
487	C131	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
488	C132	CK45BT3A101K	CAP-CD,1KV 100PF 10%	
489	C202	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
490	C203	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
491	C204	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
492	C205	CQ92BT2A471J	CAP-PE,100V 470PF J	
493	C207	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
494	C208	CE04BT1C470M	CAP-EL,SMS 16V 47UF M	
495	C210	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
496	C213	CF93BT1J224J	CAP-MPE,63V 0.22UF J	
497	C215	CQ92BT2A104J	CAP-PE,100V 0.1UF J	
498	C218	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
499	C219	CQ92BT2A562J	CAP-PE,100V 0.0056UF J	
500	C303	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
501	C304	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
502	C305	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
503	C309	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
504	C310	CQ93PT2A681J	CAP-PP,100V 680PF J TAP	
505	C311	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
506	C312	CE04BT1C220M	CAP-EL,SMS 16V 22UF M	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
507	C313	CF93BT1J224J	CAP-MPE,63V 0.22UF J	
508	C314	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
509	C315	CE04BT1C470M	CAP-EL,SMS 16V 47UF M	
510	C316	CE04BT1H470M	CAP-EL,SMS 50V 47UF M	
511	C317	CE04BT1E221M	CAP-EL,SMS 25V 220UF M	
512	C319	CQ92BT2A152J	CAP-PE,100V 1500PF J	
513	C320	CC45CT1H221J	CAP-CD,50V 220PF J NPO	
514	C321	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
515	C322	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
516	C323	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
517	C324	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
518	C325	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
519	C326	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
520	C327	CF93BT1J274J	CAP-MPE,63V 0.27UF J	
521	C328	CF93BT1J474J	CAP-MPE,63V 0.47UF J	
522	C329	CE04BT1C101M	CAP-EL,SMS 16V 100UF M	
523	C330	CQ92BT2A102J	CAP-PE,100V 0.001UF J	
524	C331	CQ92BT2A103K	CAP-PE,100V 0.01UF K	
525	C332	CK45BT3A331K	CAP-CE,1KV 330PF K TAP	
526	C333	CE04BT1E470M	CAP-EL,SMS 25V 47UF M	
527	C334	CQ92BT2A104J	CAP-PE,100V 0.1UF J	
528	C335	CE04BT1V101M	CAP-EL,SMS 35V 100UF M	
529	C336	CQ92BT2A102J	CAP-PE,100V 0.001UF J	
530	C337	CE04BT1V101M	CAP-EL,SMS 35V 100UF M	
531	C343	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
532	C345	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
533	C347	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
534	C349	CK45BT3A331K	CAP-CE,1KV 330PF K TAP	
535	C350	CQ92BT2A104K	CAP-PE,100V 0.1UF K TAP	
536	C351	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
537	C354	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
538	C355	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
539	C356	CE04BT1H4R7M	CAP-EL,SMS 50V 4.7UF M	
540	C358	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
541	C360	CE04BT2A2R2M	CAP-EL,SMS 100V 2.2UF M	
542	C363	CK45BT1H271K	CAP-CD,50V 270PF K Y5P	
543	C364	CQ92BT2A102J	CAP-PE,100V 0.001UF J	
544	C365	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
545	C366	CQ92BT2A332J	CAP-PE,100V 3300PF J	
546	C367	CK45BT1H101K	CAP-CD,50V 100PF K	
547	C368	CK45BT1H101K	CAP-CD,50V 100PF K	
548	C369	CQ92BT2A102J	CAP-PE,100V 0.001UF J	
549	C370	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
550	C371	CQ92BT2A473J	CAP-PE,100V 0.047UF J	
551	C501	CQ92BT2A104K	CAP-PE,100V 0.1UF K TAP	
552	C502	CE04BT2C010M	CAP-EL,SMS 160V 1UF M	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
553	C503	CE04BT1HR33M	CAP-EL,SMS 50V 0.33UF M	
554	C504	CE04BT2C010M	CAP-EL,SMS 160V 1UF M	
555	C505	CE04BT1E221M	CAP-EL,SMS 25V 220UF M	
556	C506	CE04BT1E221M	CAP-EL,SMS 25V 220UF M	
557	C509	CK45BN3A152K	CAP-CD,1KV 1500PF K	
558	C512	CK45BT3A102K	CAP-CD,1KV 1000PF 10%	
559	C513	2171230005	CAP-P-F,0.012UF 100V JRA	
560	C515	CE04BT1V330M	CAP-EL,SMS 35V 33UF M	
561	C606	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
562	C607	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
563	C608	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
564	C611	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
565	C612	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
566	C613	CE04BT1H2R2M	CAP-EL,SMS 50V 2.2UF M	
567	C614	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
568	C615	CE04BT1H4R7M	CAP-EL,SMS 50V 4.7UF M	
569	C616	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
570	C617	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
571	C618	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
572	C619	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
573	C620	CE04BT1H3R3M	CAP-EL,SMS 50V 3.3UF M	
574	C621	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
575	C622	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
576	C623	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
577	C625	CQ92BT2A562J	CAP-PE,100V 0.0056UF J	
578	C626	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
579	C628	CE04BT1H2R2M	CAP-EL,SMS 50V 2.2UF M	
580	C629	CC45CT1H330J	CAP-CD,50V 33PF J	
581	C630	CC45CT1H330J	CAP-CD,50V 33PF J	
582	C631	CC45CT1H330J	CAP-CD,50V 33PF J	
583	C632	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
584	C633	CE04BT1E100M	CAP-EL,SMS 25V 10UF M	
585	C635	CE04BT1H100M	CAP-EL,SMS 50V 10UF M	
586	C636	CC45CT1H220J	CAP-CD,50V 22PF J	
587	C637	CC45CT1H220J	CAP-CD,50V 22PF J	
588	F101	E42076013010	FUSE CLIP,TAPING	
589	L305	3500100523	INDUCT-FIX,DR0808 8.2MHM	
590	Q101	TTKSP45	TR,KSP45	
591	Q104	TTKRC102M	TR,SWITCHING KRC102M	
592	Q105	TTKRC102M	TR,SWITCHING KRC102M	
593	Q106	TTKTC1815Y	TR,KTC3198Y	
594	Q107	TTKRC102M	TR,SWITCHING KRC102M	
595	Q108	TTKTA966AY	TR,KTA1273Y	
596	Q109	TTKRC102M	TR,SWITCHING KRC102M	
597	Q202	TTKTC1815Y	TR,KTC3198Y	
598	Q203	TTKTC1815Y	TR,KTC3198Y	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
599	Q204	TTKTC1815Y	TR,KTC3198Y	
600	Q205	TTKTC1815Y	TR,KTC3198Y	
601	Q301	TTKRC102M	TR,SWITCHING KRC102M	
602	Q303	TTKSC945CY	TR,KSC945C-Y	
603	Q304	TTKSC945CY	TR,KSC945C-Y	
604	Q305	TTKSC945CY	TR,KSC945C-Y	
605	Q306	TTKTC1815Y	TR,KTC3198Y	
606	Q307	TTKTC3205Y	TR,SWITCHING KTC3205Y	
607	Q308	TTKTA966AY	TR,KTA1273Y	
608	Q312	TT2N7000	TR,2N7000	
609	Q313	TTKTC200Y	TR,KTC200Y TAP	
610	Q314	TTKTA200Y	TR,KTA200Y TAP	
611	Q317	TTKTA1275Y	TR,KTA1275Y	
612	Q318	TTKRC102M	TR,SWITCHING KRC102M	
613	Q319	TTKSC945CY	TR,KSC945C-Y	
614	Q321	TTKTC1815Y	TR,KTC3198Y	
615	Q501	TTKTC1815Y	TR,KTC3198Y	
616	Q502	TTKTA200Y	TR,KTA200Y TAP	
617	Q503	TTKSP45	TR,KSP45	
618	Q505	TTKTC1815Y	TR,KTC3198Y	
619	Q506	TTKTA1275Y	TR,KTA1275Y	
620	Q602	TTKRC102M	TR,SWITCHING KRC102M	
621	SW60	E42027039010	SWITCH TACT,5MM 160GF VER	
622	SW60	E42027039010	SWITCH TACT,5MM 160GF VER	
623	SW60	E42027039010	SWITCH TACT,5MM 160GF VER	
624	SW60	E42027039010	SWITCH TACT,5MM 160GF VER	
625	U501	ULM431ACZT	ADJ SHUNT REG LM431 TAP	
626	U603	UKIA7045P	IC, KIA7045P	
627	VR10	E42015046090	V-SEMI,HORI 0.1W B10K TAP	
628	VR30	E42015045120	V-SEMI,VERT 0.1W B50K TAP	
629	D308	6130014100	EYELET,2.7PAI BRASS T=0.4	
630	Q311	6130014100	EYELET,2.7PAI BRASS T=0.4	
631	Q316	6130014100	EYELET,2.7PAI BRASS T=0.4	
632	TP1	E4204304802A	PIN-GT,L=22.8MM 1.5PAIDP	
633	T501	6130014100	EYELET,2.7PAI BRASS T=0.4	
634	W301	3720101053	CONN-P,1P DEBP-230 3.15MM	
635		3540400005	MAG-FER,TR 19-12.5-11	
636	AR60	2502001002	2KOHM 0.125 W J SIP 9P	
637	AR60	2502001003	2KOHM 0.125 W J SIP 6P	
638	BD10	DND3SBA60	DIODE,BRIDGE D3SBA60	
639	BS01	B4211018301A	BRKT SHIELD	
640	C101	E42007027050	CAP-CD,AC 400V 2200PF M	
641	C102	E42007027050	CAP-CD,AC 400V 2200PF M	
642	C103	E42007009090	CAP-X,250VAC 0.22UF M	
643	C104	CE69TN2G221M	CAP-EL,SHL 400V 220UF M	
644	C112	CQ93PN3C331J	CAP-PP,1.6KV 330PF J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
645	C114	CK45BN3A103K	CAP-CD,1KV 0.01UF K	
646	C115	2104720015	CAP-CER,4700PF 400V M Y5U	
647	C118	CE04BT2A101M	CAP-EL,SMS 100V 100UF M	
648	C119	CE04BT2A101M	CAP-EL,SMS 100V 100UF M	
649	C120	CE04BT1C331M	CAP-EL,SMS 16V 330UF M	
650	C123	CE04BT1H221M	CAP-EL,SMS 50V 220UF M	
651	C124	CE04BT1V471M	CAP-EL,SMS 35V 470UF M	
652	C128	CE04BT2A101M	CAP-EL,SMS 100V 100UF M	
653	C133	CE04BT1E471M	CAP-EL,SMS 25V 470UF M	
654	C137	2104720015	CAP-CER,4700PF 400V M Y5U	
655	C206	CE04BT1C222M	CAP-EL,SMS 16V 2200UF M	
656	C209	CE04BT1H221M	CAP-EL,SMS 50V 220UF M	
657	C211	CE04BT1C102M	CAP-EL,SMS 16V 1000UF M	
658	C216	2141040020	CAP-M-P,0.1UF 250V J RAD	
659	C308	CE04BT1C471M	CAP-EL,SMS 16V 470UF M	
660	C318	CE04BT1E331M	CAP-EL,SMS 25V 330UF M	
661	C338	2171520012	CAP-P-F,1500PF 2000V JRA	
662	C339	2148540001	CAP-M-P,0.85UF 400V J FOR	
663	C340	2175620011	CAP-P-F,5600PF 630V J RAD	
664	C341	2173040002	CAP-P-F,0.3UF 250V J RAD	
665	C342	2172740001	CAP-PF,0.27UF 250V J FOR	
666	C344	2171240003	CAP-P-F,0.12UF 250V J RAD	
667	C346	2172230011	CAP-P-F,0.022UF 250V JRA	
668	C348	2002200054	CAP-AL,22UF 200V M 10*20	
669	C352	2173330010	CAP-P-F,0.033UF 250V JRA	
670	C353	2141050009	CAP-M-P,1UF 100V J RAD	
671	C359	CF93MN2E103J	CAP-MPE,250V 0.01UF J	
672	C361	2174720016	CAP-P-F,4700PF 2000V JRA	
673	C362	2171530015	CAP-P-F,0.015UF 630V JRA	
674	C507	CE04BT2E100M	CAP-EL,SMS 250V 10UF M	
675	C510	2142240021	CAP-M-P,0.22UF 250V J RAD	
676	DSB6	E42043076010	CONN,D-SUB 15P 3R FEMALE	
677	D105	3100500088	DI-SW,31DF6-FC LEAD	
678	D107	3100500086	DI-SW,S3L20U-4004P15 LEAD	
679	D108	3100500092	DI-SW,S3L40-4004P15 LEAD	
680	D111	3100500088	DI-SW,31DF6-FC LEAD	
681	D308	M11143010012	SCREW,BIN(+) 3X10 MSZPC	
682	D308	M31100030012	NUT HEX,6N1-3 MSZPC	
683	D308	3102000168	DI-REC,FMP-3FU LEAD	
684	D312	3100500092	DI-SW,S3L40-4004P15 LEAD	
685	D318	3102000165	FMP-2GFS LEAD	
686	F101	E42025012060	FUSE,TIME LAG 19181 3.15A	
687	LD10	B4211516201B	HOLDER LED, POWER	
688	LD10	DN339-1UYUGC	DIODE,LED EL339-1UYUGC/T1	
689	L101	3520200073	FILTER LC,SQE2930 30MHMI	
690	L103	E42019057010	COIL CHOKE 47UH	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
691	L104	E42019057010	COIL CHOKE 47UH	
692	L301	3500100510	INDUCT-FIX,DR1420 150UH5	
693	L302	3500100508	INDUCT-FIX,LIN DR1415 5PI	
694	L303	E42019105040	CHOKE COIL,110UH DR14204	
695	L304	3500100511	INDUCT-FIX,SIZE DR15235P	
696	NF10	E42029086010	FILTER,EMI IX-0342-P	
697	NF10	M11173006012	SCREW,FLAT(+) M3*6	
698	P102	3720101302	CONN-M,YW396-03V(2ND PDE	
699	P301	3725001923	CONN-A,5P FLAT 190MM HL7870A	
700	P302	3725001921	CONN-A,7P FLAT 300MM HL7870A	
701	P303	3725001924	CONN-A,VIDEO CABLE 7P 220	
702	P304	3725001933	CONN-A,CABLE 10P*10P 370M	
703	P305	E42043007010	CONN POST,2P 5267-02A	
704	P601	E42043007050	CONN POST 6P 5267-06A	
705	Q102	M11143010012	SCREW,BIN(+) 3X10 MSZPC	
706	Q102	M31100030012	NUT HEX,6N1-3 MSZPC	
707	Q102	3114000073	FET,2SK2141 LEAD	
708	Q102	6124020200	HEAT SINK V ASSY,A1050	
709		6120013700	SOLDER GRIP(SPTE T=0.5)	
710		6124020000	HEAT SINK V A1050P	
711	Q103	TTKSA614Y	TR,KSA614Y	
712	Q302	TNIRF740	FET IRF740	
713	Q309	3114000071	FET,2SK2134 LEAD	
714	Q310	3114000071	FET,2SK2134 LEAD	
715	Q311	M11143010012	SCREW,BIN(+) 3X10 MSZPC	
716	Q311	M31100030012	NUT HEX,6N1-3 MSZPC	
717	Q311	3110100464	TR-GEN,BU2525AF LEAD	
718	Q315	B4212501002A	HEAT SINK PWR,ANODIZE 40M	
719	Q315	M11143008012	SCREW,BIN(+) M3*8 MSZPC	
720	Q315	3114000071	FET,2SK2134 LEAD	
721	Q316	B4212501004A	H/SINK PWR,ANODIZE 60MM	
722	Q316	M11143008012	SCREW,BIN(+) M3*8 MSZPC	
723	Q316	TNKTC4368	TR,VERT.OUTPUT KTC4368	
724	Q507	TN2SC3675	TR, 2SC3675	
725	RL10	3710100050	RELAY,12V 10A 5PIN	
726	RL30	3710100049	JS1-12V 12 V 10 A 5	
727	RP10	3411300010	POSISTOR,90HM 3PIN 9 250M	
728	RT10	E42077084090	THERMISTOR 18 OHM 18D-13	
729	R107	RS02P0F0683J	RES-MOF,2W 68K OHM J BU	
730	R110	RS03P0F0683J	RES-MOF,RS 3W 68K OHM J	
731	R123	2580338001	RES JUM,0.33 OHM 2 W JS	
732	R345	2561300001	RES-CEM,130 5W J R	
733	R377	RS02P0F0102J	RES-MOF,2W 1K OHM J BU	
734	SG50	3411100043	VARISTOR,S23 1500V 1500V	
735	SW10	B4211505301A	GUIDE POWER SWITCH	
736	SW10	E42027035010	SWITCH PWR,1101A20TS-B	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
737	SW30	E42027014010	LEVER SWITCH,30'C 3P	
⚠ 738	T101	3510200054	TRAN-PW,EER4042 7870A	
739	T102	E42031090040	TRANS SYNC,UU1116	
740	T301	3510300090	TRAN-SW,HDT EI1916 880UH	
741	T501	M13414010012	SCREW ST2 PAN(+) 4*10 MZC	
⚠ 742	T501	3510500043	FBT,KFS-61432	
743	T501	6120016800	SHLD-CASE,FBT ASY HL7870A	
744	FS01	6120016600	FENCE SHIELD FBT T=1.0	
745	FS02	B4211008901A	SOLDER GRIP	
746	T502	3510300092	TRAN-SW,FOCUS EI2519 7870A	
747	U101	UKA3842B	IC,CURRENT PWM CONTROLLER	
748	U102	UKIA7808PI	IC,VOLT REGU.KIA7808PI	
749	U104	ULM7805CT	IC,VOL REGULATOR,LM7805CT	
750	U201	M11143008012	SCREW,BIN(+) M3*8 MSZPC	
751	U201	M31100030012	NUT HEX,6N1-3 MSZPC	
752	U201	UTDA9302H	IC,TDA9302H VER AMP	
753	U201	6124020200	HEAT SINK V ASSY,A1050	
754		6120013700	SOLDER GRIP(SPTE T=0.5)	
755		6124020000	HEAT SINK V A1050P	
756	U301	USTV7778	IC,H/V DEFLECTION STV7778	
757	U302	ULM358N	IC,OP-AMP LM358N	
758	U601	3205001020	IC-U,MC68HC705BD3P DIPOT	
759	U602	U24LC04BP	IC,EEPROM 24LC04B-P	
760	U604	U24LC21P	IC,EEPROM 24LC21P	
761	W101	E42045208040	WIRE ASSY,RING 85MM GN/YE	
762	W102	3755000511	WIRE-ASS'Y,70MM BK 10151	
763	X601	3530200360	VIB-QUARTZ,HC-49/U 4MHZ4	
764		M13443008012	SCREW ST2 BIN(+)3*8 MSZPC	
765		M17744006012	SCREW,BIN(+) M4*6 MSZPC	
766		3754000012	WIRE-NS-M,160MM GY	
767		6101070400	HL-7864E CHASSIS MAIN SEC	
768		6110102600	BKT,FBT SECC HL-7870A	
769		6210050700	GUIDE PCB L,HL-7864F ABS	
770		6210050800	GUIDE PCB R,HL-7864F ABS	
771		6223047200	SUPPORT,SCREW HL-7864F	

2. PCB CRT BOARD ASSY

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
1		E4208412662	PCBA CRT(A6*),HL-7870A	
2		E4208412652	PCBA CRT(A5*),HL-7870A	
3		E4208412642	PCBA CRT(A4*),HL-7870A	
4		304010058501	PCB-SINGLE,7870A CRT F1	
5	B401	E42019099010	BEAD CORE	
6	B402	E42019099010	BEAD CORE	
7	B403	E42019099010	BEAD CORE	
8	B404	E42019099010	BEAD CORE	
9	B407	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
10	B411	E42019099010	BEAD CORE	
11	B412	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
12	B413	E42019094010	CORE,BEAD HF55BTL3.5*4.5R	
13	C401	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
14	C402	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
15	C403	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
16	C405	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
17	C406	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
18	C407	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
19	C409	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
20	C410	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
21	C411	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
22	C423	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
23	C456	E44007011070	CAP-MCD,Z5U 50V 0.1UF Z	
24	D411	DTISS81	DIODE,SWITCHING ISS81	
25	D412	DTISS81	DIODE,SWITCHING ISS81	
26	D413	DTISS81	DIODE,SWITCHING ISS81	
27	D414	DTISS81	DIODE,SWITCHING ISS81	
28	D415	DTISS81	DIODE,SWITCHING ISS81	
29	D416	DTISS81	DIODE,SWITCHING ISS81	
30	D420	DT1N4148	DIODE,1N4148 TAPING	
31	D421	DTISS81	DIODE,SWITCHING ISS81	
32	D422	DTISS81	DIODE,SWITCHING ISS81	
33	D423	DTISS81	DIODE,SWITCHING ISS81	
34	FL408	3540200057	BD-FER,BFS2550	
35	FL409	3540200057	BD-FER,BFS2550	
36	FL410	3540200057	BD-FER,BFS2550	
37	G401	E42039003020	SURGE,PROTECTOR 300V 30%	
38	G402	E42039003020	SURGE,PROTECTOR 300V 30%	
39	G403	E42039003020	SURGE,PROTECTOR 300V 30%	
40	J401	3753000024	WIRE JUM,52MM TAP. SDA 1/	
41	J402	3753000024	WIRE JUM,52MM TAP. SDA 1/	
42	J403	3753000024	WIRE JUM,52MM TAP. SDA 1/	
43	J404	3753000024	WIRE JUM,52MM TAP. SDA 1/	
44	J405	3753000024	WIRE JUM,52MM TAP. SDA 1/	
45	J406	3753000024	WIRE JUM,52MM TAP. SDA 1/	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
46	J407	3753000024	WIRE JUM,52MM TAP. SDA 1/	
47	J408	3753000024	WIRE JUM,52MM TAP. SDA 1/	
48	J409	3753000024	WIRE JUM,52MM TAP. SDA 1/	
49	J410	3753000024	WIRE JUM,52MM TAP. SDA 1/	
50	J411	3753000024	WIRE JUM,52MM TAP. SDA 1/	
51	J412	3753000024	WIRE JUM,52MM TAP. SDA 1/	
52	J413	3753000024	WIRE JUM,52MM TAP. SDA 1/	
53	J414	3753000024	WIRE JUM,52MM TAP. SDA 1/	
54	J415	3753000024	WIRE JUM,52MM TAP. SDA 1/	
55	J416	3753000024	WIRE JUM,52MM TAP. SDA 1/	
56	J417	3753000024	WIRE JUM,52MM TAP. SDA 1/	
57	J418	3753000024	WIRE JUM,52MM TAP. SDA 1/	
58	J419	3753000024	WIRE JUM,52MM TAP. SDA 1/	
59	J420	3753000024	WIRE JUM,52MM TAP. SDA 1/	
60	J421	3753000024	WIRE JUM,52MM TAP. SDA 1/	
61	J422	3753000024	WIRE JUM,52MM TAP. SDA 1/	
62	J423	3753000024	WIRE JUM,52MM TAP. SDA 1/	
63	J424	3753000024	WIRE JUM,52MM TAP. SDA 1/	
64	J425	3753000024	WIRE JUM,52MM TAP. SDA 1/	
65	J426	3753000024	WIRE JUM,52MM TAP. SDA 1/	
66	J428	3753000024	WIRE JUM,52MM TAP. SDA 1/	
67	J429	3753000024	WIRE JUM,52MM TAP. SDA 1/	
68	J430	3753000024	WIRE JUM,52MM TAP. SDA 1/	
69	J431	3753000024	WIRE JUM,52MM TAP. SDA 1/	
70	J432	3753000024	WIRE JUM,52MM TAP. SDA 1/	
71	J433	3753000024	WIRE JUM,52MM TAP. SDA 1/	
72	J436	3753000024	WIRE JUM,52MM TAP. SDA 1/	
73	J437	3753000024	WIRE JUM,52MM TAP. SDA 1/	
74	J438	3753000024	WIRE JUM,52MM TAP. SDA 1/	
75	J439	3753000024	WIRE JUM,52MM TAP. SDA 1/	
76	J440	3753000024	WIRE JUM,52MM TAP. SDA 1/	
77	J441	3753000024	WIRE JUM,52MM TAP. SDA 1/	
78	J442	3753000024	WIRE JUM,52MM TAP. SDA 1/	
79	J443	3753000024	WIRE JUM,52MM TAP. SDA 1/	
80	J444	3753000024	WIRE JUM,52MM TAP. SDA 1/	
81	J445	3753000024	WIRE JUM,52MM TAP. SDA 1/	
82	J447	3753000024	WIRE JUM,52MM TAP. SDA 1/	
83	L401	E42019058250	COIL,PEAKING 22 UH AXIAL	
84	L421	3500100473	INDUCT-FIX,AL03TTBR47MM	
85	L422	3500100473	INDUCT-FIX,AL03TTBR47MM	
86	L423	3500100473	INDUCT-FIX,AL03TTBR47MM	
87	R401	RD-8P0T0680J	RES-CF,RD 1/8W 68 OHM J	
88	R402	RD-8P0T0680J	RES-CF,RD 1/8W 68 OHM J	
89	R403	RD-8P0T0680J	RES-CF,RD 1/8W 68 OHM J	
90	R404	RD-8P0T0103J	RES-CF,RD 1/8W 10K OHM J	

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
91	R405	RD-8P0T0432J	RES-CF,RD 1/8W 4.3K OHM J	
92	R409	RD-8P0T0203J	RES-CF,RD 1/8W 20K OHM J	
93	R410	RD-8P0T0153J	RES-CF,RD 1/8W 15K OHM J	
94	R411	RD-8P0T0331J	RES-CF,RD 1/8W 330 OHM J	
95	R412	RD-8P0T0331J	RES-CF,RD 1/8W 330 OHM J	
96	R413	RD-8P0T0471J	RES-CF,RD 1/8W 470 OHM J	
97	R414	RD-8P0T0101J	RES-CF,RD 1/8W 100 OHM J	
98	R415	RD-8P0T0331J	RES-CF,RD 1/8W 330 OHM J	
99	R416	RD-8P0T0101J	RES-CF,RD 1/8W 100 OHM J	
100	R417	RD-8P0T0331J	RES-CF,RD 1/8W 330 OHM J	
101	R418	RD-8P0T0101J	RES-CF,RD 1/8W 100 OHM J	
102	R419	RD-8P0T0392J	RES-CF,RD 1/8W 3.9K OHM J	
103	R421	RN-8P0T1202F	RES-MF,RN 1/8W 12KOHM F	
104	R422	RN-8P0T1001F	RES-MF,RN 1/8W 1K OHM F	
105	R423	RD-8P0T0103J	RES-CF,RD 1/8W 10KOHM J	
106	R424	RD-8P0T0822J	RES-CF,RD 1/8W 8.2K OHM J	
107	R425	RD-8P0T0102J	RES-CF,RD 1/8W 1K OHM J	
108	R426	RD-8P0T0105J	RES-CF,RD 1/8W 1M OHM J	
109	R427	RD-8P0T0562J	RES-CF,RD 1/8W 5.6K OHM J	
110	R428	RD-8P0T0103J	RES-CF,RD 1/8W 10KOHM J	
111	R429	RD-8P0T0562J	RES-CF,RD 1/8W 5.6K OHM J	
112	R430	RD-8P0T0221J	RES-CF,RD 1/8W 220 OHM J	
113	R431	RD-4P0T0220J	RES-CF,RD 1/4W 22 OHM J	
114	R432	RD-4P0T0220J	RES-CF,RD 1/4W 22 OHM J	
115	R433	RD-4P0T0220J	RES-CF,RD 1/4W 22 OHM J	
116	R434	RD-4P0T0102J	RES-CF,RD 1/4W 1K OHM J	
117	R435	RD-8P0T0562J	RES-CF,RD 1/8W 5.6K OHM J	
118	R436	RD-8P0T0331J	RES-CF,RD 1/8W 330 OHM J	
119	R437	RD-8P0T0331J	RES-CF,RD 1/8W 330 OHM J	
120	R438	RD-4P0T0330J	RES-CF,RD 1/4W 33 OHM J	
121	R439	RD-4P0T0330J	RES-CF,RD 1/4W 33 OHM J	
122	R440	RD-4P0T0330J	RES-CF,RD 1/4W 33 OHM J	
123	R461	RD-8P0T0824J	RES-CF,RD 1/8W 820K OHM J	
124	R462	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
125	R463	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
126	R464	RD-4P0T0244J	RES-CF,RD 1/4W 240K OHM J	
127	R465	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
128	R466	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
129	R467	RD-8P0T0152J	RES-CF,RD 1/8W 1.5K OHM J	
130	R471	RD-8P0T0824J	RES-CF,RD 1/8W 820K OHM J	
131	R472	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
132	R473	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
133	R474	RD-4P0T0244J	RES-CF,RD 1/4W 240K OHM J	
134	R475	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
135	R476	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	

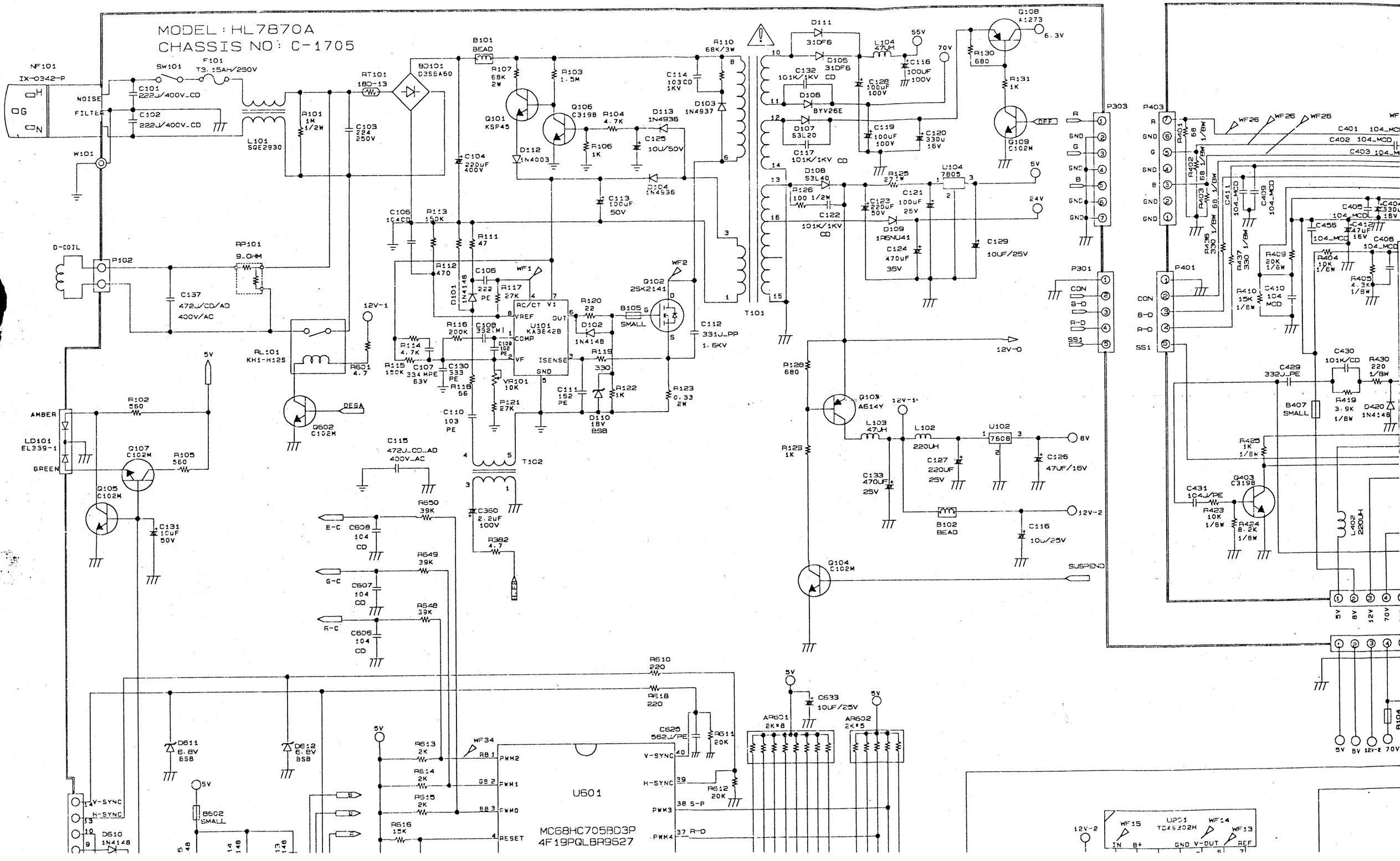
NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
136	R477	RD-8P0T0152J	RES-CF,RD 1/8W 1.5K OHM J	
137	R481	RD-8P0T0824J	RES-CF,RD 1/8W 820K OHM J	
138	R482	RD-4P0T0103J	RES-CF,RD 1/4W 10K OHM J	
139	R483	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
140	R484	RD-4P0T0244J	RES-CF,RD 1/4W 240K OHM J	
141	R485	RD-4P0T0154J	RES-CF,RD 1/4W 150K OHM J	
142	R486	RD-4P0T0472J	RES-CF,RD 1/4W 4.7K OHM J	
143	R487	RD-8P0T0152J	RES-CF,RD 1/8W 1.5K OHM J	
144	R490	RD-2P0T0560J	RES-CF,RD 1/2W 56 OHM J	
145	R491	RD-2P0T0560J	RES-CF,RD 1/2W 56 OHM J	
146	R492	RD-2P0T0560J	RES-CF,RD 1/2W 56 OHM J	
147	R493	RD-2P0T0101J	RES-CF,RD 1/2W 100 OHM J	
148	R494	RD-2P0T0101J	RES-CF,RD 1/2W 100 OHM J	
149	C404	CE04BT1C331M	CAP-EL,SMS 16V 330UF M	
150	C408	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
151	C412	CE04BT1C470M	CAP-EL,SMS 16V 47UF M	
152	C413	CE04BT1C470M	CAP-EL,SMS 16V 47UF M	
153	C415	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
154	C416	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
155	C417	CE04BT1H010M	CAP-EL,SMS 50V 1UF M	
156	C419	2001010084	CAP-AL,100UF 16V M 6.3*11	
157	C420	CQ92BT2A562J	CAP-PE,100V 0.0056UF J	
158	C422	CE04BT1C101M	CAP-EL,SMS 16V 100UF M	
159	C424	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
160	C425	CQ92BT2A103J	CAP-PE,100V 0.01UF J	
161	C426	CC45CT1H100J	CAP-CD,CK45B 50V 10PF J	
162	C428	CE04BT1C101M	CAP-EL,SMS 16V 100UF M	
163	C429	CQ92BT2A332J	CAP-PE,100V 3300PF J	
164	C430	CK45BT1H101K	CAP-CD,50V 100PF K	
165	C431	CQ92BT2A104J	CAP-PE,100V 0.1UF J	
166	C432	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
167	C433	CE04BT2A100M	CAP-EL,SMS 100V 10UF M	
168	C434	CQ92BT2A104K	CAP-PE,100V 0.1UF K TAP	
169	C435	CQ92BT2A104J	CAP-PE,100V 0.1UF J	
170	C436	CE04BT2A100M	CAP-EL,SMS 100V 10UF M	
171	C437	CE04HT1H010M	CAP-EL,NHPF 50V 1UF M TAP	
172	C438	CE04HT1H010M	CAP-EL,NHPF 50V 1UF M TAP	
173	C439	CE04HT1H010M	CAP-EL,NHPF 50V 1UF M TAP	
174	C440	CC45CT1H100J	CAP-CD,CK45B 50V 10PF J	
175	C450	CQ92BT2A104K	CAP-PE,100V 0.1UF K TAP	
176	C451	CQ92BT2A104K	CAP-PE,100V 0.1UF K TAP	
177	C452	CQ92BT2A104K	CAP-PE,100V 0.1UF K TAP	
178	C453	CE04BT2C4R7M	CAP-EL,SMS 160V 4.7UF M	
179	C455	CE04IT2A220M	CAP-EL,KME 100V 22UF M	
180	C457	CE04BT1C101M	CAP-EL,SMS 16V 100UF M	

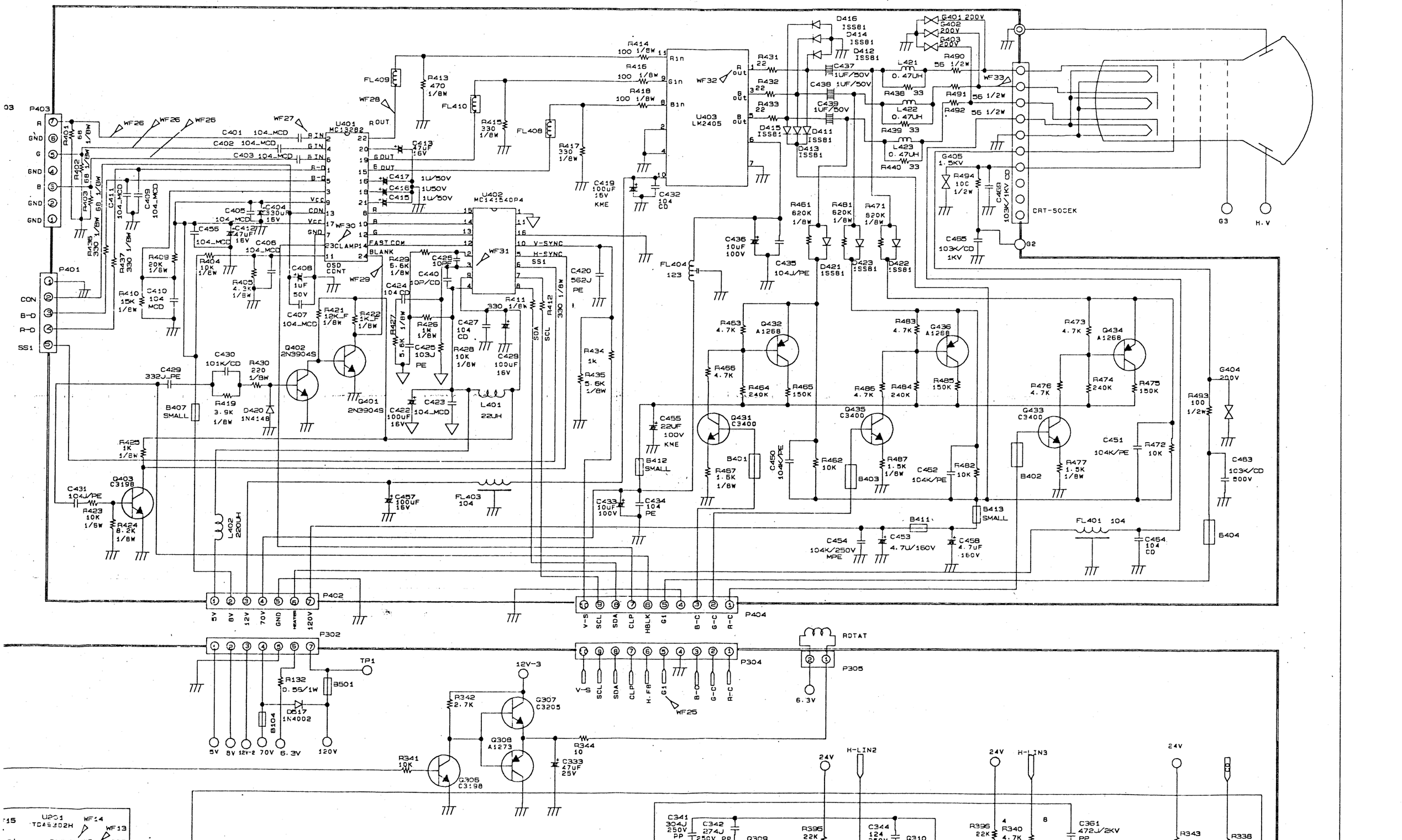
NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMARK
181	C458	CE04BT2C4R7M	CAP-EL,SMS 160V 4.7UF M	
182	C464	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
183	FL401	E42029026410	FILTER,EMI 50V 0.1UF M	
184	FL403	E42029026410	FILTER,EMI 50V 0.1UF M	
185	FL404	E42029012020	NOISE FILTER,TH28123MA	
186	Q401	TT2N3904S	TR,2N3904 TAP	
187	Q402	TT2N3904S	TR,2N3904 TAP	
188	Q403	TTKTC1815Y	TR,KTC3198Y	
189	Q431	TTKTC3400Y	TR,KTC3400Y NPN	
190	Q432	TTKTA1268BL	TR,LOW NOISE KTA1268BL	
191	Q433	TTKTC3400Y	TR,KTC3400Y NPN	
192	Q434	TTKTA1268BL	TR,LOW NOISE KTA1268BL	
193	Q435	TTKTC3400Y	TR,KTC3400Y NPN	
194	Q436	TTKTA1268BL	TR,LOW NOISE KTA1268BL	
195	GT4	3720101053	CONN-P,1P DEBP-230 3.15MM	
196	G2	3720101104	CONN M,17MM 1	
197	P407	3720101053	CONN-P,1P DEBP-230 3.15MM	
198		6120016700	SHLD-CASE,FENCE CRT 7870A	
199		6124021701	H-SINK,VIDEO HL-7870A	
200	C427	CG45FT1H104Z	CAP-CD,50V 0.1UF Z	
201	C454	CF93MT2E104K	CAP-MPE,250V 0.1UF K	
202	C463	CK45BT2H103K	CAP-CD,500V 0.01UF K	
203	C465	CK45BN3A103K	CAP-CD,1KV 0.01UF K	
204	C469	CK45BN3A103K	CAP-CD,1KV 0.01UF K	
205	G404	E42039003020	SURGE,PROTECTOR 300V 30%	
206	G405	3411100043	VARISTOR,S23 1500V 1500V	
207	L402	E42019058370	COIL,PEAKING 220 UH AXIAL	
208	P401	3720101228	CONN-M,5045-5A 5	
209	P402	3720101206	CONN-M,5045-7A 7	
210	P403	3720101206	CONN-M,5045-7A 7	
211	P404	3720101231	CONN-M,5045-10A 10	
212	P405	3721100577	CONN-F,ISDS04S 12	
213	U401	UMC13282AP	IC,VIDEO MC13282AP	
214	U402	UMC141540P4	IC,OSD MC141540P4	
215	U403	M11143008012	SCREW,BIN(+) M3*8 MSZPC	
216	U403	3200000560	IC-LIN,LM2405 TO2	

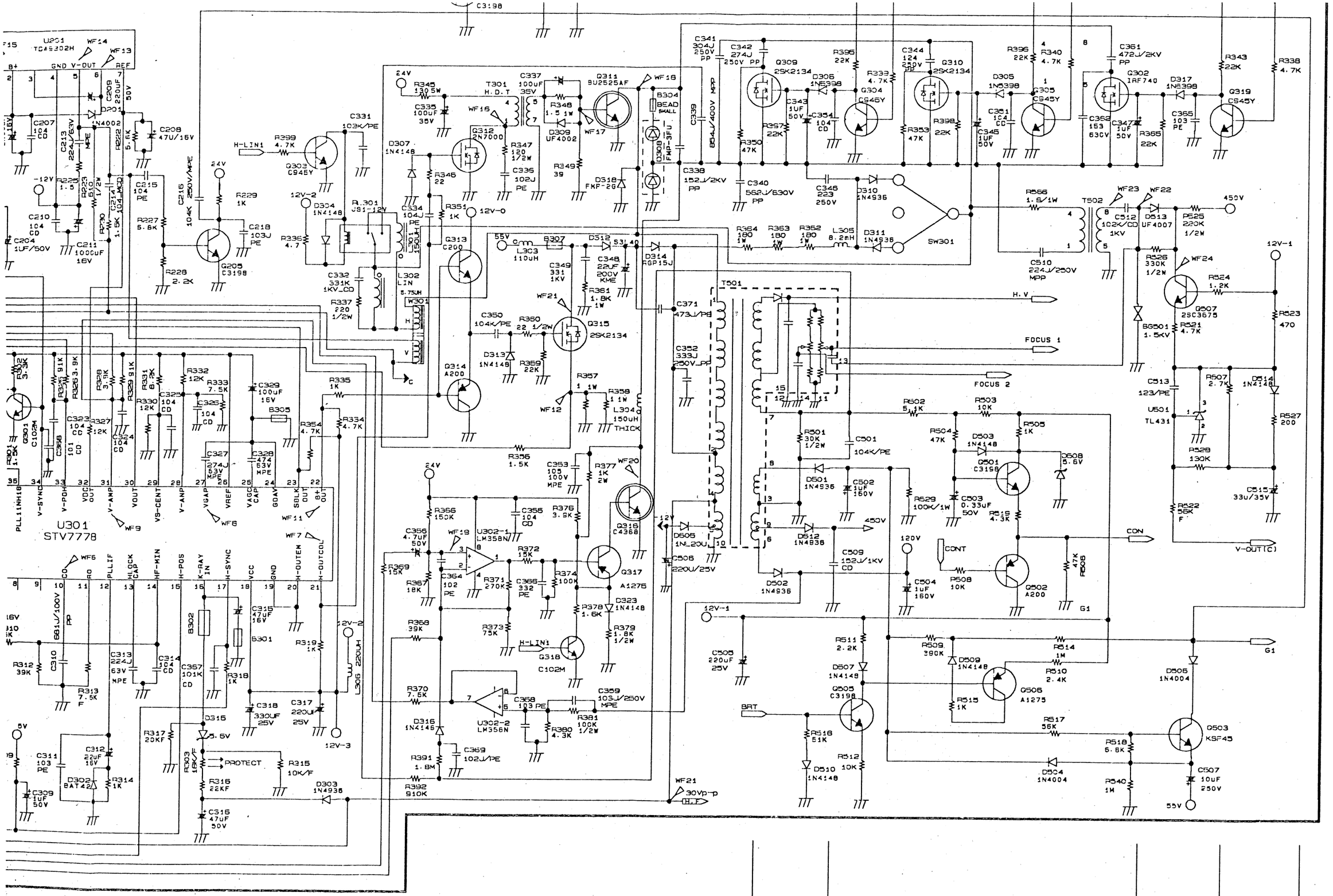
CRT

NUM.	LOCATION	PART NUMBER	DESCRIPTION	REMAIK
⚠ 1	CRT	E4203304013M	M41KXH100X11	HL-7870A
⚠ 2	CRT	3010100063	M41KXH110X11-M	HT-7870A

SCHEMATIC DIAGRAM




P403
P401
P402
P404
P302
P304
P305
U401 MC13282
U402 MC141540P4
U403 LM2405
CRT-SOCEK
RDTAT
TP1
WF25
WF26
WF27
WF28
WF29
WF30
WF31
WF32
WF33
FL409
FL410
FL408
FL404
FL403
FL401
Q401 2N3904S
Q402 2N3904S
Q403 C3198
Q431 C3400
Q432 A1268
Q433 C3400
Q434 A1268
Q435 C3400
Q436 A1268
Q307 C3205
Q308 A1273
Q309 2SK2134
Q310 2SK2134
G307 C3205
G306 C3198
L401 22UH
L402 220UH
L421 0.47UH
L422 0.47UH
L423 0.47UH
D415 ISS81
D411 ISS81
D413 ISS81
D416 ISS81
D414 ISS81
D412 ISS81
D421 1SS81
D423 1SS81
D422 1SS81
D420 1N4148
D517 1N4002
B407 SMALL
B412 SMALL
B413 SMALL
B411
B401
B402
B403
B404
B501
B104
G401 200V
G402 200V
G403 200V
G404 200V
G405 1.5KV
G1
G2
G3
H.V
5V
8V
12V
70V
GND
HEATER
120V
6.3V
V-S
SCL
SDA
CLP
HBLK
G1
B-C
G-C
R-C
H-F
CLPC
SS1
CON
B-D
R-D
H-LIN2
H-LIN3
24V
12V-3
12V-2
U201 TDA5302H
B+
GND
V-OUT
REF



DWG. REV.	DESCRIPTION			DOC. NO.	DATE / APPROVAL
DWG. NO.	E42095221	SIGNATURE	DATE	INSP	SHEET NO.
TITLE HL7870A	DWN	B. H. NAM	1996.08.22		1/1
HYUNDAI ELECTRONICS	CHK	S. K. CHON	1996.08.22		
	APP	Y. K. BYUN	1996.08.22		

NOTE:
1. RESISTANCE IS SHOWN IN OHM K=1,000 M=1,000,000 RATED POWER OF RESISTOR NOT NOTED IN SCHEMATIC DIAGRAM IS 1/6W R-CARBON.
2. CAPACITANCE IS SHOWN pF AND NOTED CAPACITANCES IS SHOWN uF. uF=1,000,000pF RATED VOLTAGE OF CONDENCER NOT NOTED IN SCHEMATIC DIAGRAM IS 50V.
3. ABBREVIATION AND SYMBOL
   P: POLYESTER PP: POLYPROPYLENE
4. THIS SCHEMATIC DIAGRAM IS SUBJECTED TO CHANGE WITHOUT NOTICE FOR FURTHER IMPROVEMENT.

MENT CONTAINS SAFETY CRITICAL COMPONENTS
THE ⚠ MARKS OF THE SCHEMATIC ARE SAFETY
TICAL COMPONENTS ONLY WITH MANUFACTURERS
ST FOR EXACT REPLACEMENTS.

MC68HC705BD3P
4F19PQLBR9527

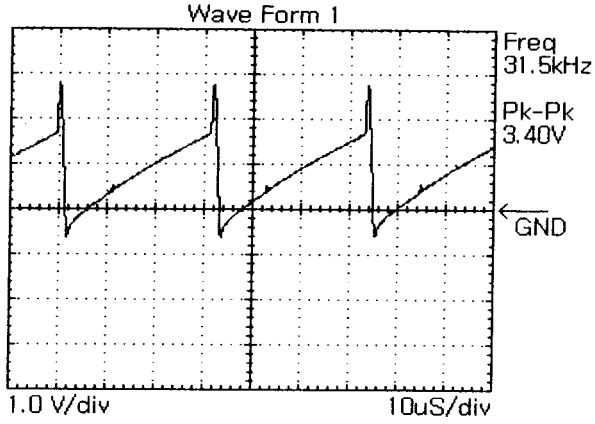
MCU

U301
STV7778

WARNING: THIS EQUIPMENT CONTAINS SAFETY CRITICAL COMPONENTS
ALL PARTS SHOWN IN THE ⚠ MARKS OF THE SCHEMATIC ARE SAFETY
REPLACE SAFETY CHITICAL COMPONENTS ONLY WITH MANUFACTURERS
RECOMMENED PARTS LIST FOR EXACT REPLACEMENTS.

WAVEFORM

Wave Form 1



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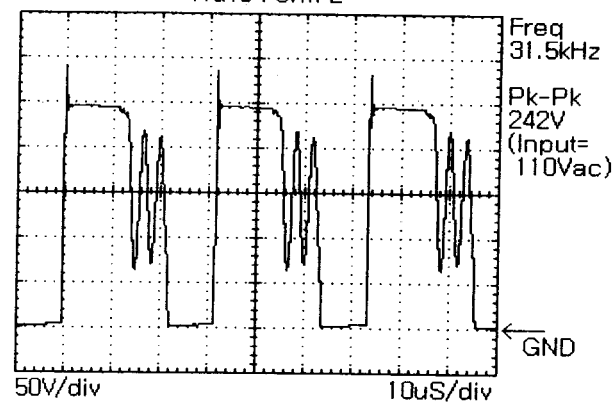
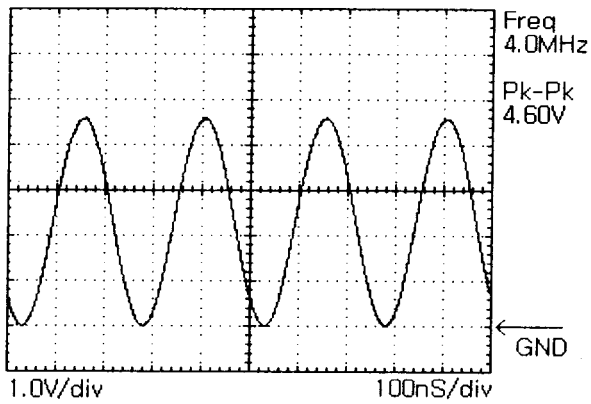
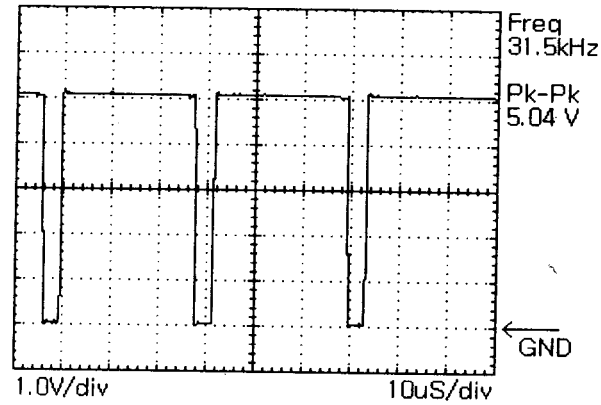


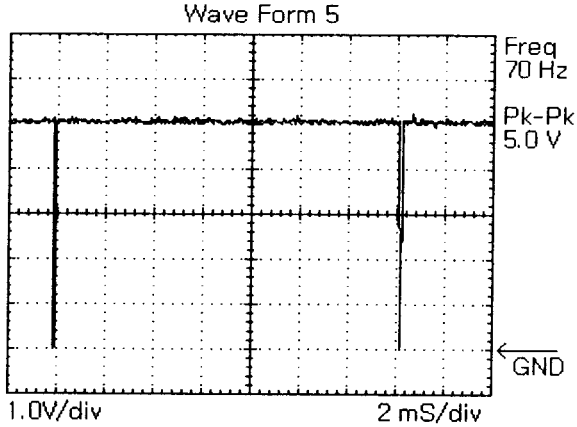
Wave Form 3



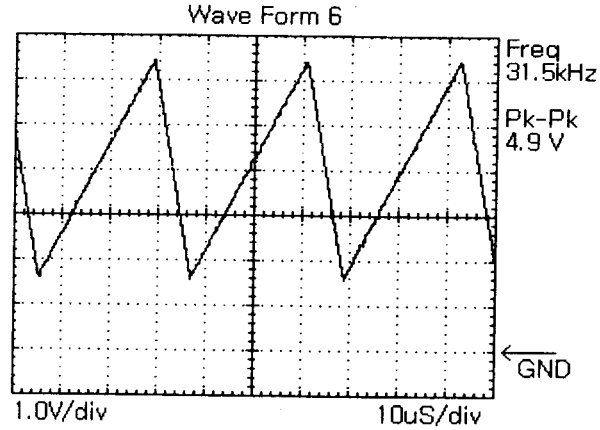
Wave Form 4



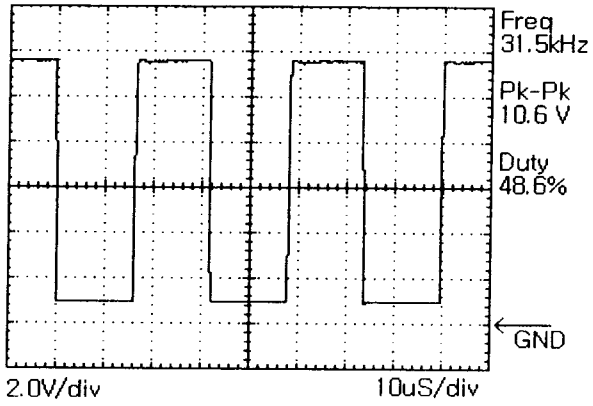
Wave Form 5



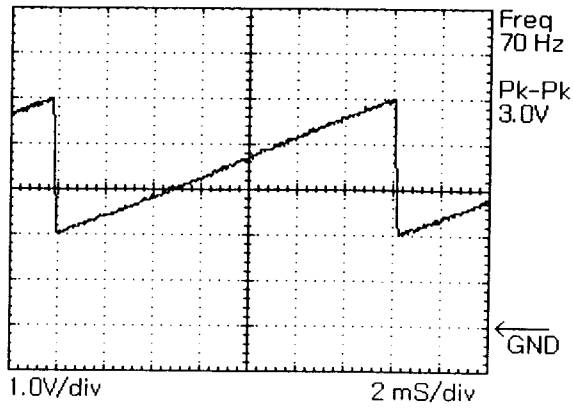
Wave Form 6



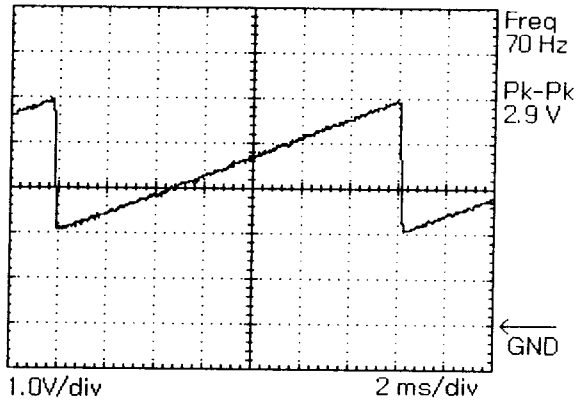
Wave Form 7



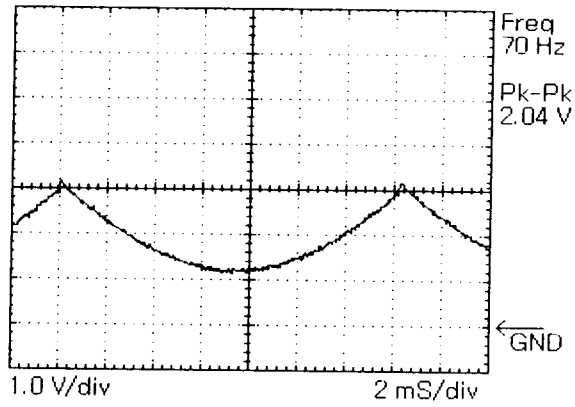
Wave Form 8



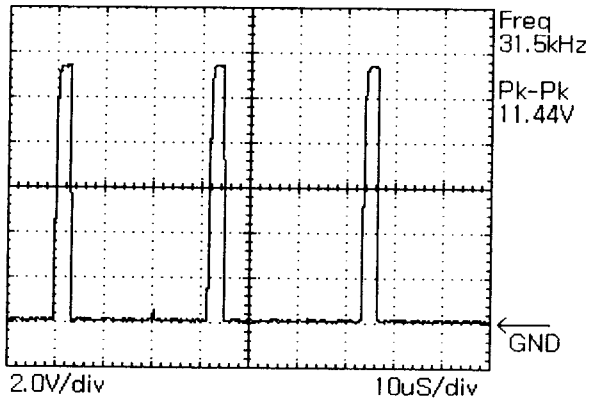
Wave Form 9



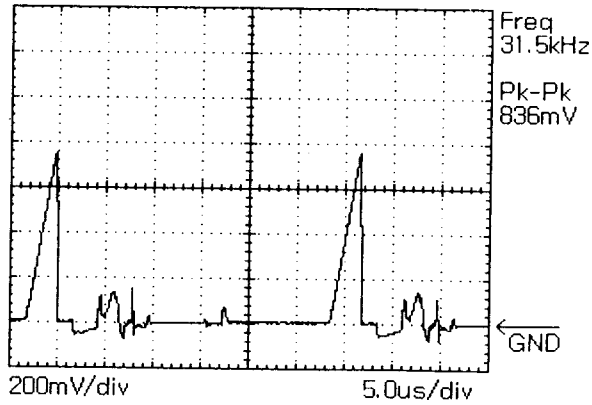
Wave Form 10



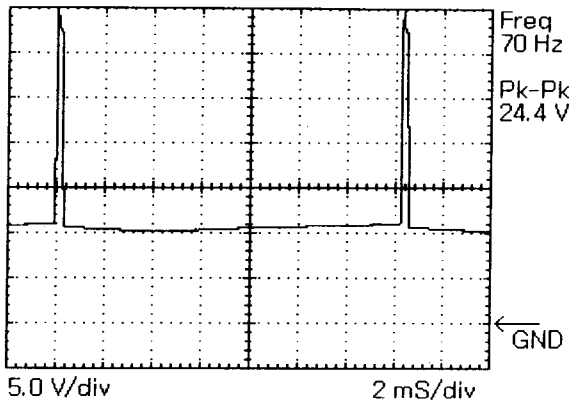
Wave Form 11



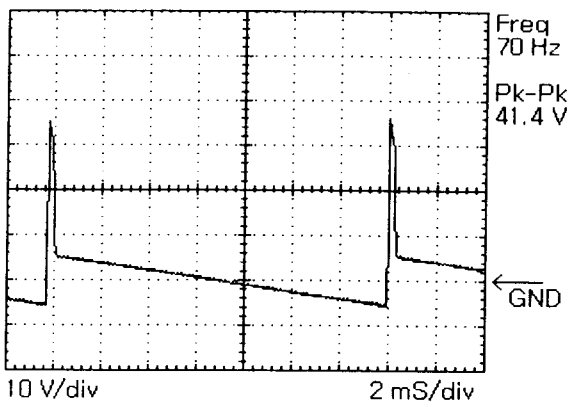
Wave Form 12



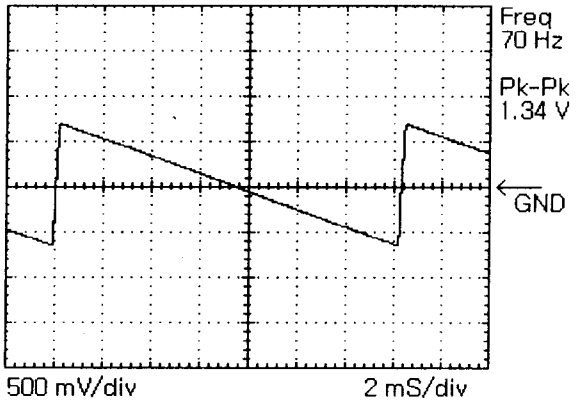
Wave Form 13



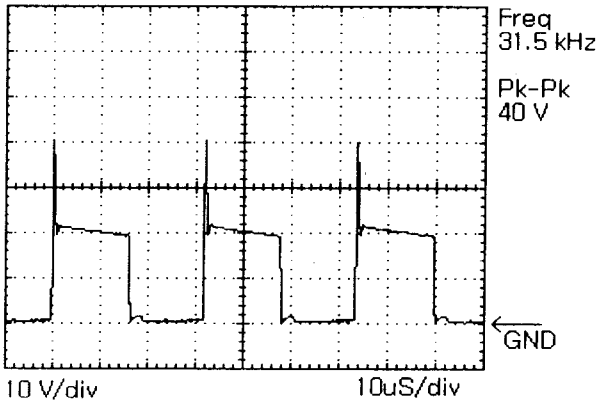
Wave Form 14



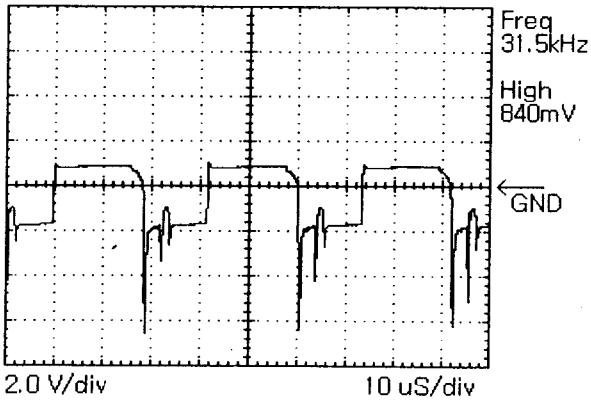
Wave Form 15



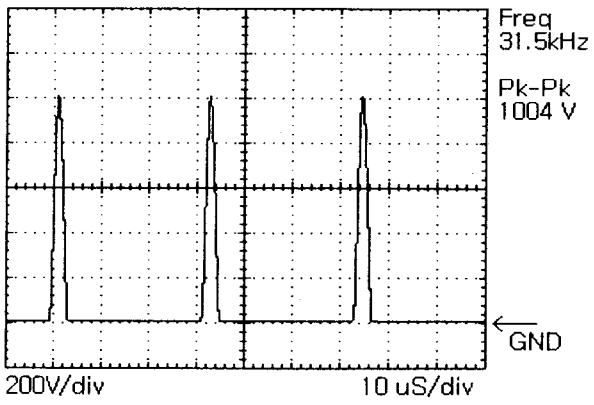
Wave Form 16



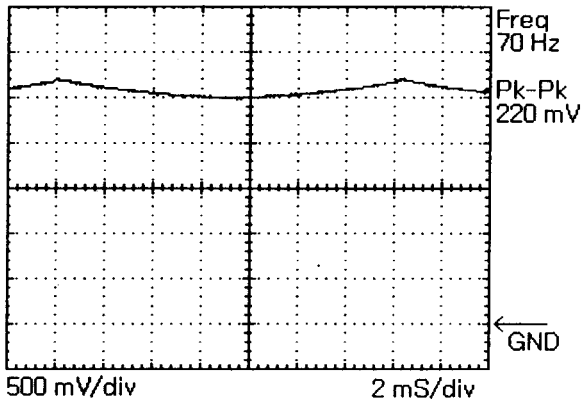
Wave Form 17



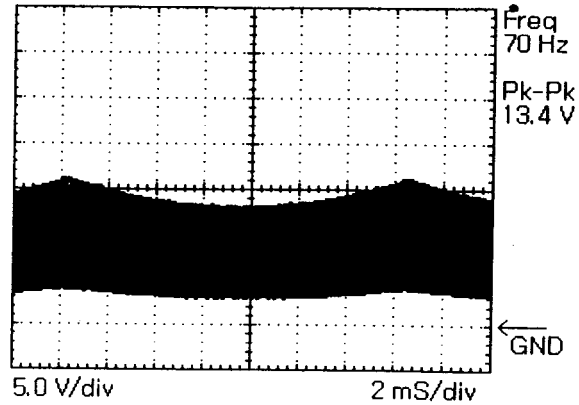
Wave Form 18



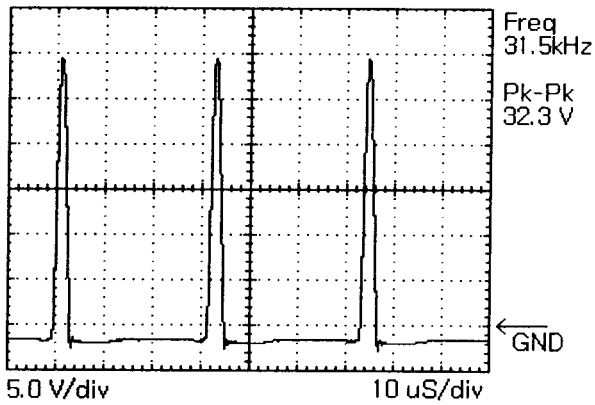
Wave Form 19



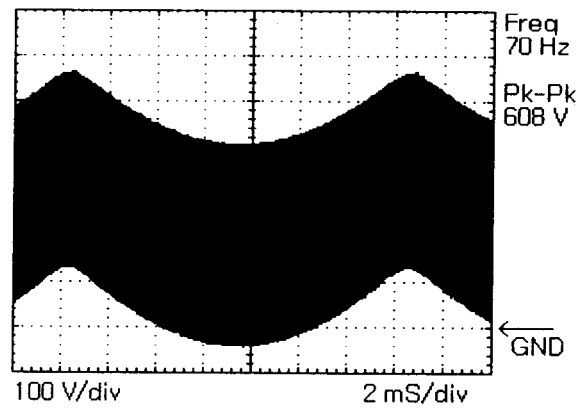
Wave Form 20



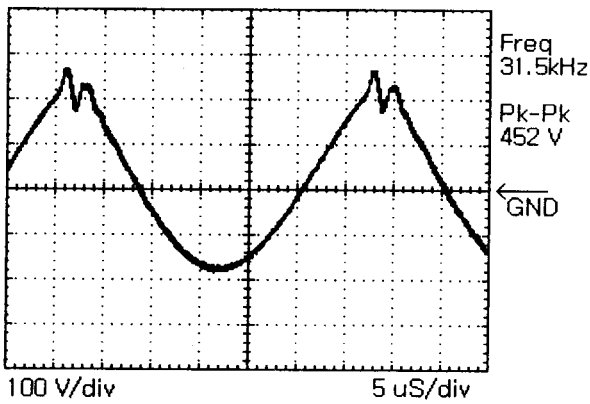
Wave Form 21



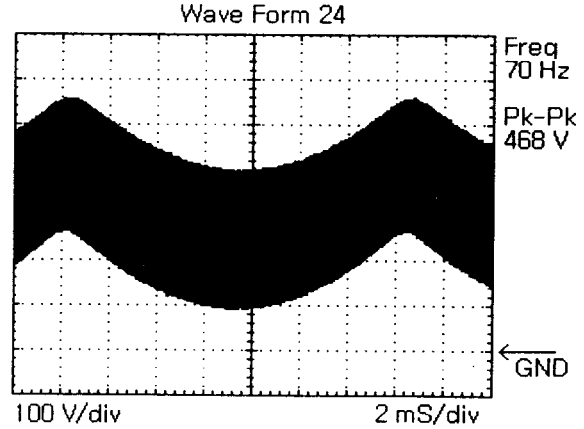
Wave Form 22



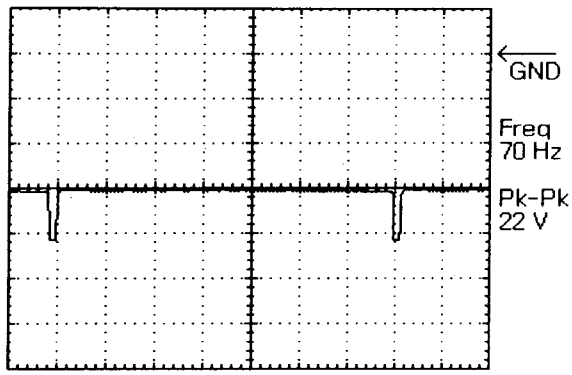
Wave Form 23



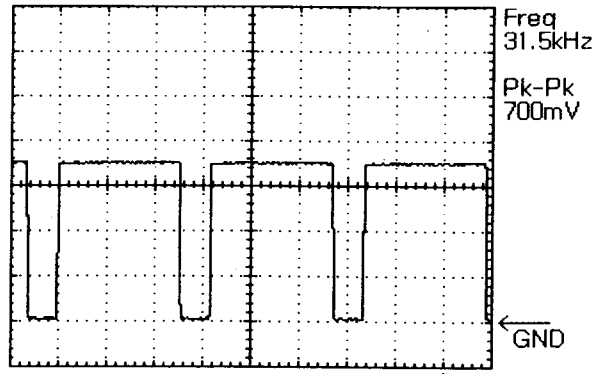
Wave Form 24



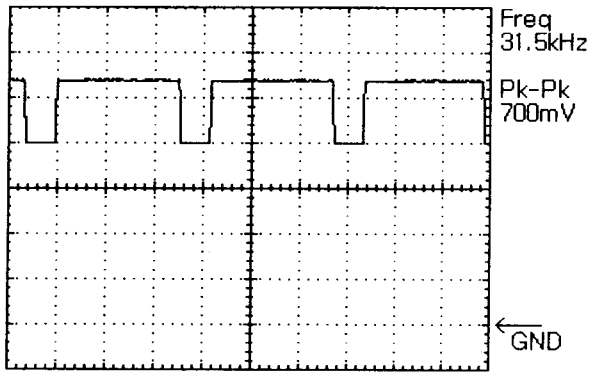
Wave Form 25



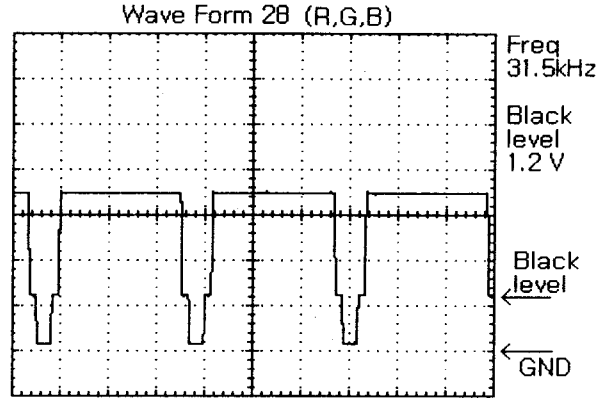
Wave Form 26 (R,G,B)



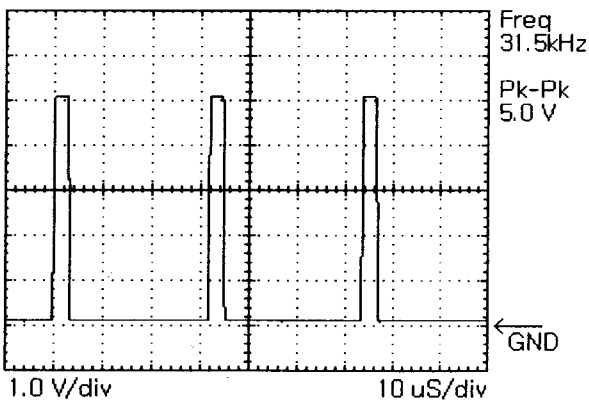
Wave Form 27 (R,G,B)



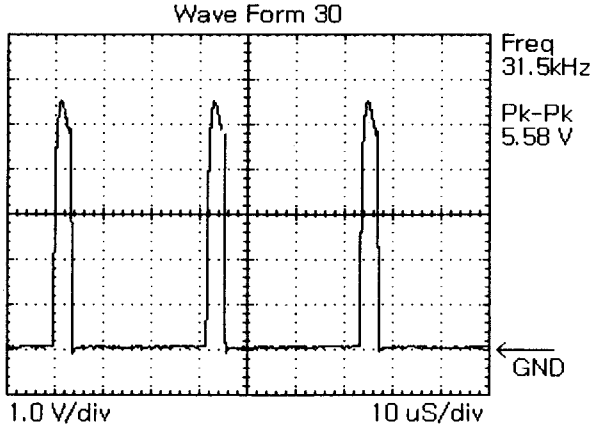
Wave Form 28 (R,G,B)



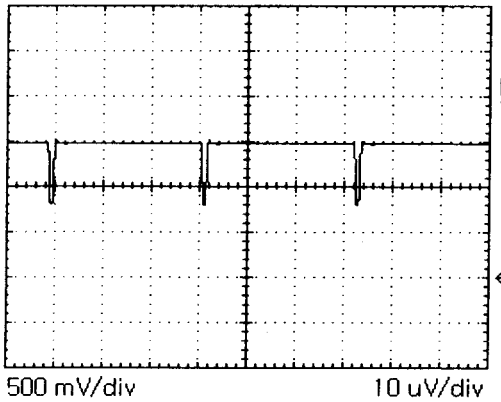
Wave Form 29



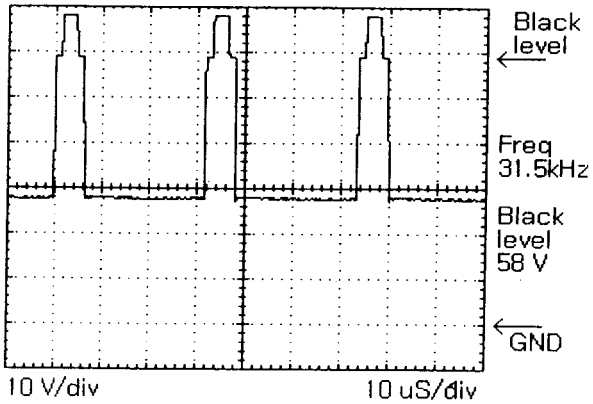
Wave Form 30



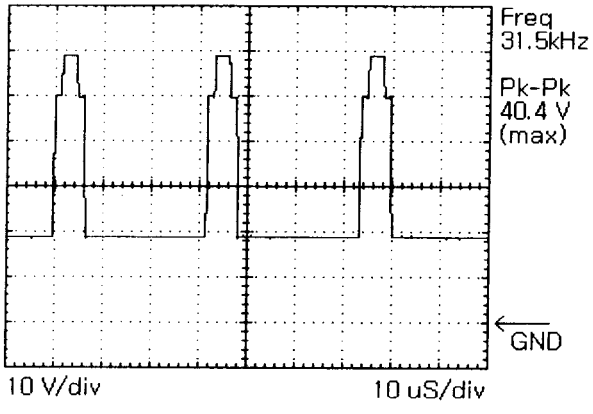
Wave Form 31



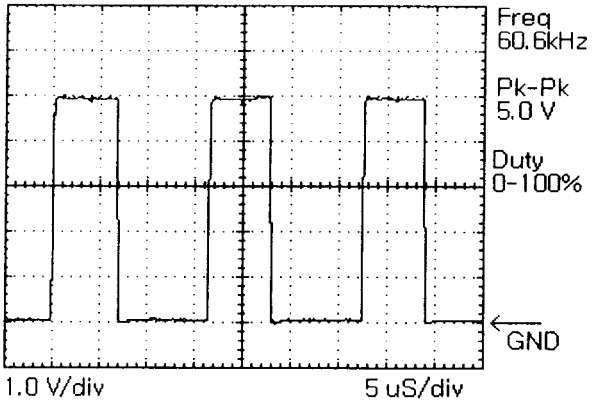
Wave Form 32 (R,G,B)



Wave Form 33 (R,G,B)

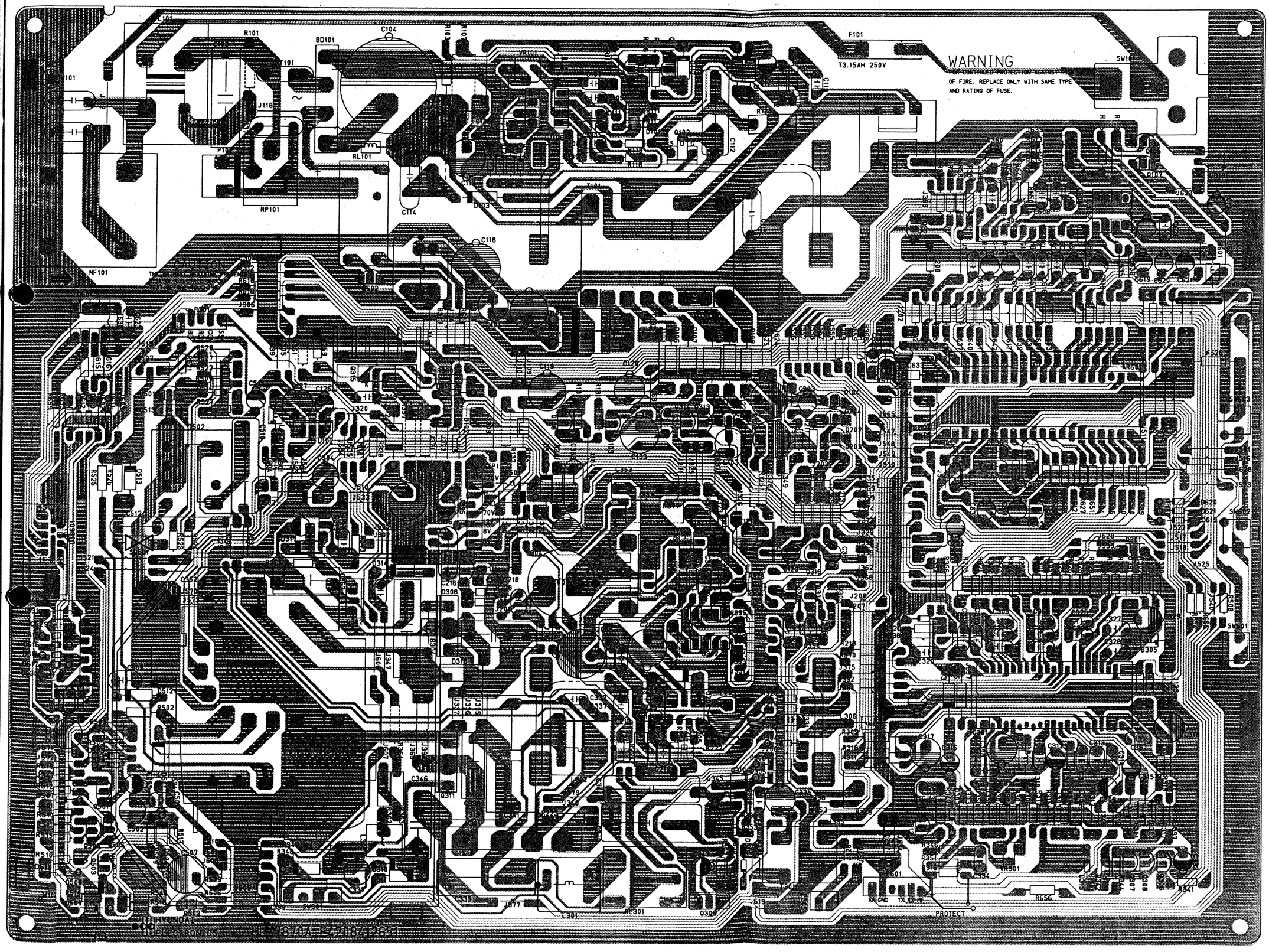


Wave Form 34 (PWM0-13)

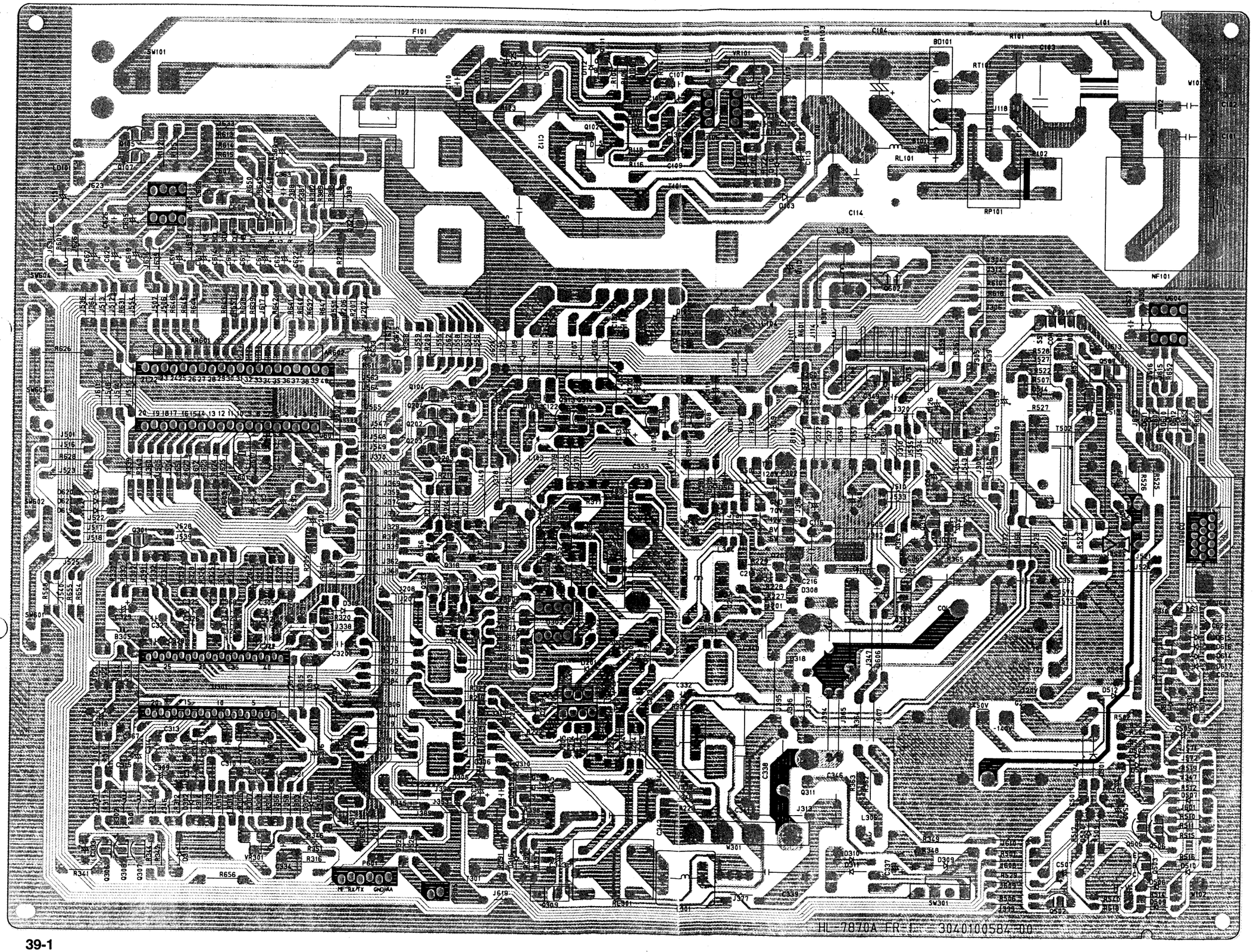


PCB LAYOUT

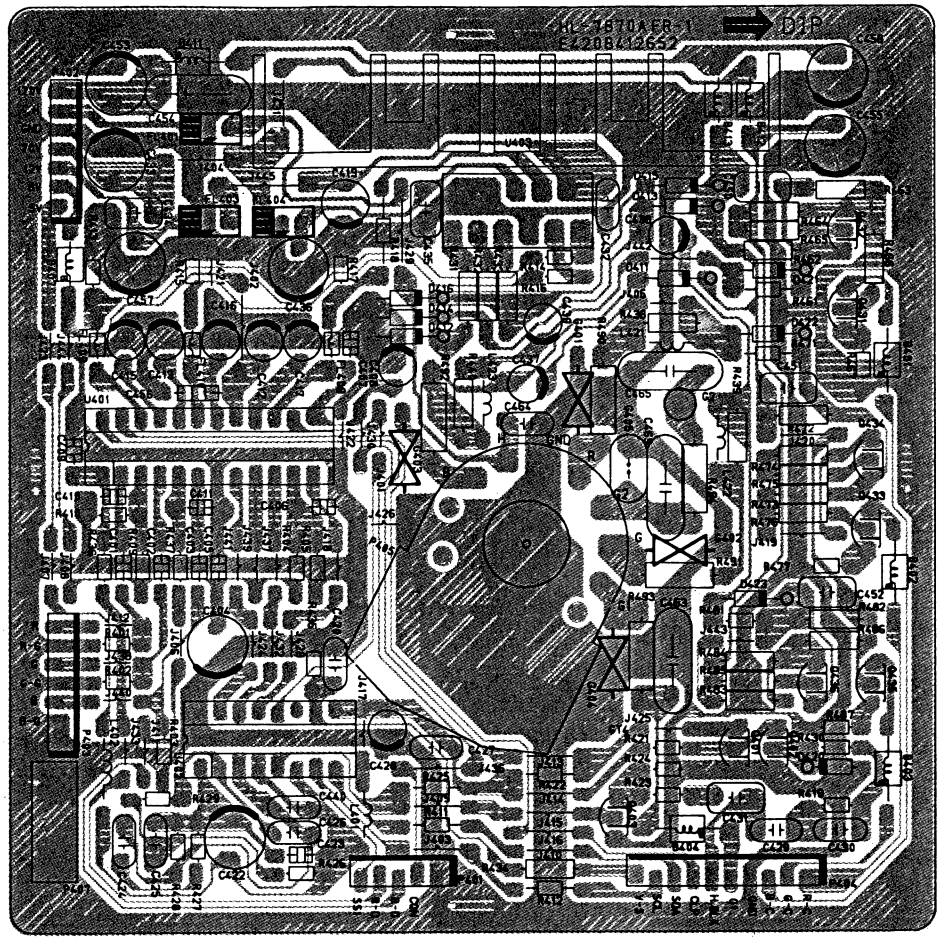
MAIN PCB *COMPONENT SIDE*



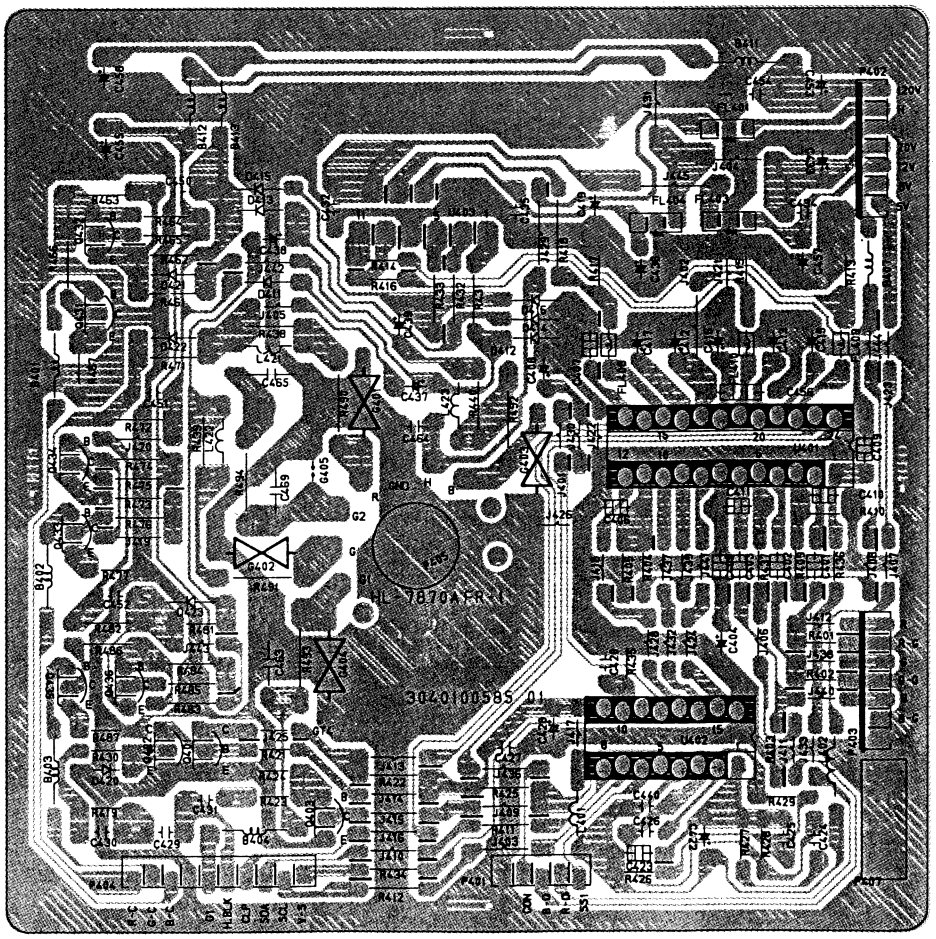
MAIN PCB *SOLDER SIDE*



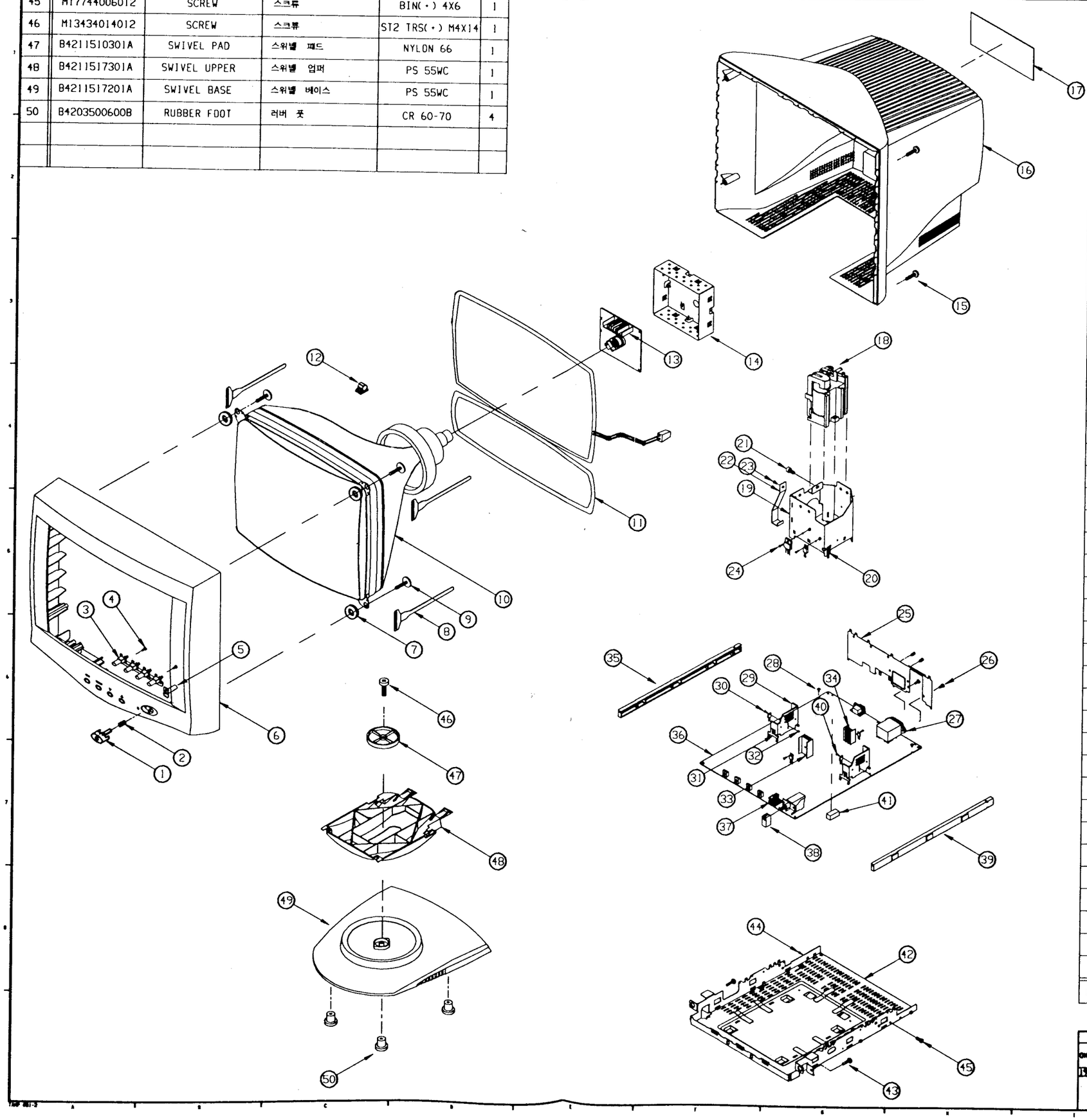
CRT PCB *COMPONENT SIDE*



CRT PCB *SOLDER SIDE*



45	M17744006012	SCREW	스크류	BIN(·) 4X6	1
46	M13434014012	SCREW	스크류	ST2 TRS(·) M4X14	1
47	B4211510301A	SWIVEL PAD	스위벌 패드	NYLON 66	1
48	B4211517301A	SWIVEL UPPER	스위벌 업퍼	PS 55WC	1
49	B4211517201A	SWIVEL BASE	스위벌 베이스	PS 55WC	1
50	B4203500600B	RUBBER FOOT	러버 풋	CR 60-70	4



44	B440B002410A	SCREW	스크류	ST2 BIN(·)W 3X8	1
43	M13444014012	SCREW	스크류	ST2 BIN(·) M4X14	2
42	6101070400	CHASSIS MAIN	샤시 메인	SECC T·1.0	1
41	B4213501101A	RUBBER BAR	러버 바	CR 60-70	1
40	M11143010012	SCREW	스크류	BIN(·) M3X10	1
39	6210050800	GUIDE PCB R	가이드 피씨비 알	ABS 94-V0	1
38	B4211505301A	GUIDE POWER SWITCH	가이드 파워 스위치	ABS 94-V0	1
37	B4211516201B	HOLDER LED POWER	홀다 엘이디 파워	ABS 94-V0	1
36	304010058401	PCBA MAIN	피씨비에이 메인	FR-1	1
35	6210050700	GUIDE PCB L	가이드 피씨비 엘	ABS 94-V0	1
34	B4212501002A	HEAT SINK POWER	히트 싱크 파워	A6063S T5	1
33	B4212501004A	HEAT SINK POWER	히트 싱크 파워	A6063S T5	1
32	M31100030012	NUT	너트	HEX 6N1-3 MSZPC	4
31	6120013700	SOLDER GRIP(DUAL)	솔더 그립	SPTE T·0.5	4
30	M11143008012	SCREW	스크류	BIN(·) M3X8	3
29	6124020000	HEAT SINK V	히트 싱크 브이	A1050P T·2.0	2
28	B4213500801A	MOUNTING BUTTON	마운팅 버턴		2
27	E42077006010	AC INLET	에이씨 인렛		1
26	M11173006012	SCREW	스크류	FLAT(·) M3X6	2
25	B4211101B301A	BRKT SHIELD	브라켓 실드	SPTE T·0.5	1
24	M11143010012	SCREW	스크류	BIN(·) M3X10	2
23	M13443008012	SCREW	스크류	ST2 BIN(·) 3X8	1
22	6110102600	BRKT FBT	브라켓 에프비티	SECC T·1.0	1
21	M13414010012	SCREW	스크류	ST2 PAN(·) 4X10	1
20	B4211008901	SOLDER GRIP	솔더 그립	SPTE T·0.5	3
19	6120016600	FENCE SHIELD FBT	펜스 실드 에프비티	A1050P T·1.0	1
18	351050004300	FBT	에프비티		1
17	B4214502022A	PLATE SPEC	플레이트 스펙	POL.FILM T·0.5	1
16	6201146100	COVER REAR	커버 리어	ABS 94-5V	1
15	M13434014012	SCREW	스크류	ST2 TRS(·) M4X14	4
14	6120016700	FENCE SHIELD CRT	펜스 실드 씨알티	SPTE T·0.3	1
13	6124021701	HEAT SINK VIDEO	히트 싱크 비디오	A6063S T5	1
12	B4218500601B	QUICK CLAMP	퀵 클램프		1
11	E42019111010	DEGAUSSING COIL	디가우징 코일		1
10	E4203304013H	CRT	씨알티		1
9	6129026900	SCREW	스크류	ST2 BIN(·) M5X22	4
8	B4218500201C	RETAINER COIL	리테이너 코일	SECC T·0.4	4
7	B4213502301A	RUBBER CRT	러버 씨알티	CR 60-70	4
6	B4211516601A	COVER FRONT	커버 프런트	ABS 94-5V	1
5	B4211517001A	LENS LED	렌즈 엘이디	ACRYLIC	1
4	M13443008012	SCREW	스크류	ST2 BIN(·) 3X8	2
3	B4211516901A	CONTROL KNOB	컨트롤 노브	ABS 94-V0	1
2	B4214000301A	SPRING COMP	스프링 콤프	SUS 304	1
1	6215137900	KNOB POWER	노브 파워	ABS 94-V0	1
NO	PART NO	PART NAME	품 목	DESCRIPTION	QT'Y

DRAWN BY	PLOTTED BY	CHECKED BY	APPROVED BY	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN mm (INCHES) TOLERANCES ARE: LINEAR ± ANGLES ± RADII UNLESS NOTED. ±	ANGLE 3·1
ON SE NOOH					SCALE N/S
1996.09.11					SIZE A2
HYUNDAI ELECTRONICS				MDL HL-7870A	SHEET 1/1
				REF NO.	FILE NAME

TITLE: EXPLODED VIEW
REV: A
DWG NO. B42100048